

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF WISCONSIN**

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Application of Wisconsin Public Service  
Corporation for Authority to Adjust Electric  
and Natural Gas Rates

Docket 6690-UR-127

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**DIRECT TESTIMONY OF STEVE KIHM  
ON BEHALF OF CITIZENS UTILITY BOARD**

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Public Service Commission of Wisconsin  
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### 1 I. INTRODUCTION

2 **Q. Please state your name, business address, and occupation.**

3 A. My name is Steve Kihm and my business address is the Citizens Utility Board (CUB), 625  
4 North Segoe Rd, Suite 101, Madison, Wisconsin 53705. I am employed by CUB as  
5 Regulatory Strategist.

6 **Q. Please describe your professional experience.**

7 A. My work in the field of utility regulation spans the past 42 years, including 21 years on the  
8 staff of the Wisconsin Public Service Commission. I have also worked for Slipstream  
9 Group, MSB Energy Associates, and since September of last year the Citizens Utility Board  
10 of Wisconsin (CUB). In my career I have served in the roles of Principal, Chief Economist,  
11 Research Director, and Financial Economist, in addition to my current Regulatory Strategist  
12 position. I have testified before regulatory bodies in the District of Columbia, Georgia,

1 Hawaii, Illinois, Maine, Michigan, Pennsylvania, and Wisconsin. The Oregon Department  
2 of Justice also retained me to represent it before the Oregon Tax Court as an expert witness  
3 on the impact of cost of equity estimates on utility market valuations. In my work with  
4 Lawrence Berkeley National Laboratory I developed utility stock pricing models for the  
5 U.S. Department of Energy. I also am a member of the advisory board for Berkeley Lab's  
6 Future Electric Utility Regulation research project, and I am an invited contributor to the  
7 Federal Reserve Bank of Philadelphia's macroeconomic forecasting project.

8 In addition to my role as regulatory strategist at CUB, I am also Senior Fellow-  
9 Finance at Michigan State University's Institute of Public Utilities. In that role, in addition  
10 to providing training to commissioners, their staffs, utility managers, federal policy analysts,  
11 and advocates from across the country, I am responsible for content development for the  
12 courses, which includes cost of equity, capital structure, utility stock valuation, and risk  
13 assessment. I have conducted that training annually since 2005. Since 2013 I have also been  
14 the finance instructor for the Wisconsin Public Utility Institute's Energy Utility Basics  
15 course where I focus on issues related to utility stock price formation, risk, and investor  
16 return requirements. I have also provided custom in-house finance training to regulators in  
17 Hawaii, Michigan, Minnesota, and Wisconsin.

18 **Q. Please describe your educational background and professional credentials.**

19 A. I hold a Doctor of Business Administration degree with concentrations in applied corporate  
20 finance and business strategy from the University of Wisconsin-Whitewater, a Master of  
21 Business Administration degree in finance and a Master of Science degree in quantitative  
22 analysis from the University of Wisconsin-Madison, and a Bachelor of Science degree in  
23 economics with highest honor from the University of Wisconsin-La Crosse. Since 1992 I

1 have held the Chartered Financial Analyst (CFA) credential. I have published professional  
2 peer reviewed articles in the *Journal of Applied Corporate Finance*, *Managerial Finance*,  
3 the *Energy Law Journal*, and the *Electricity Journal*, as well as policy analyses in *Public*  
4 *Utilities Fortnightly*. I co-authored the text *Risk Principles for Public Utility Regulators* with  
5 Dr. Janice Beecher, Executive Director of the Michigan State University Institute of Public  
6 Utilities.<sup>1</sup>

7 **Q. On whose behalf are you appearing in this proceeding?**

8 A. I am testifying on behalf of CUB.

9 **Q. Did you recently file testimony on this topic in the current Wisconsin Electric**  
10 **Power/Wisconsin Gas case (Docket 5-UR-110)?**

11 A. Yes.

12 **Q. Are the testimonies similar?**

13 A. Yes, they are in large part the same. This make sense for several reasons. First, all of the  
14 finance principles and the historical analysis apply equally to all three utilities. The second  
15 reason is less obvious. Costs of capital do not vary much among firms in the same industry,  
16 as noted by management consultants at McKinsey & Co.

17 It is a common misconception that the cost of capital is company-specific,  
18 rather than a function of the industries in which a company operates and the  
19 specific investments it makes. For the most part, companies have scant  
20 influence over the cost of capital of their individual business units or their  
21 companies as a whole.<sup>2</sup>

22  
23 As I will discuss later the factors that drive a firm's cost of equity are its sensitivity to  
24 changes in macroeconomic conditions, not the risks specific to it no matter how threatening

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<sup>1</sup> Janice Beecher and Steve Kihm. 2016. *Risk Principles for Public Utility Regulators*. East Lansing, MI: Michigan State University Press.

<sup>2</sup> Tim Koller, Marc Goedhart, and David Wessels, 2020, *Valuation: Measuring and Managing the Value of Companies*, Hoboken, NJ: John Wiley & sons, p. 59.

1 they might be in terms of stock price impacts. It is a particular stock's contribution to the  
2 volatility of a diversified portfolio, not the volatility of the stock itself, that determines its  
3 risk in the capital markets and therefore its cost of capital.

4 The most significant risk factor for regulated utilities is shared by all of them. It is  
5 described by the adjective—they are regulated. They provide a basic service subject to  
6 regulatory protections. As a result, they are less sensitive to recessions than are  
7 manufacturing firms, for example. That is what makes them low risk stocks as additions to  
8 investment portfolios. That risk level does not depend on the specific operational  
9 characteristics of the utilities.

## 10 **II. THE NEED FOR A HISTORICAL REVIEW OF THE ROLE OF CAPITAL MARKETS**

11 **Q. What topics do you address in this testimony?**

12 A. I discuss issues related to the returns utilities earn, those their investors require, and utility  
13 stock prices, and then how the interaction between those three items allows capital to flow to  
14 utilities. But before I dive into definitions and technical discussions, I would like to start  
15 with a true story, a piece of utility history.

16 **Q. What is the purpose of the historical review?**

17 A. I will show that the ROE a utility earns has no effect on its ability to raise capital, and that  
18 utilities can easily raise capital even when their ROEs are lower than the returns investors  
19 require. This condition can hold for extended periods (a decade in the historical example)  
20 and capital will still flow freely to utilities. We will see that this is in fact exactly what  
21 finance principles suggest should happen—attracting capital never has been and never will  
22 be a problem for utilities, regardless of the ROEs they earn (as long as they're not  
23 permanently negative).

1           Attracting capital depends on expectations that manifest in the form of utility costs  
2           of equity, not ROEs. The difference between these returns is explained later in the  
3           testimony. Investors will willingly provide capital to utilities under almost any  
4           circumstances, even dire ones, and will expect to earn reasonable returns even if the utility  
5           does not. This expectation of reasonable investor returns is evidence-based. Though this is  
6           nothing more than conventional corporate finance, it turns less-sophisticated conventional  
7           regulatory views of financial issues on their heads, which is why this is so important to  
8           understand. To set forth the theory is one thing; to demonstrate that it works is quite another.

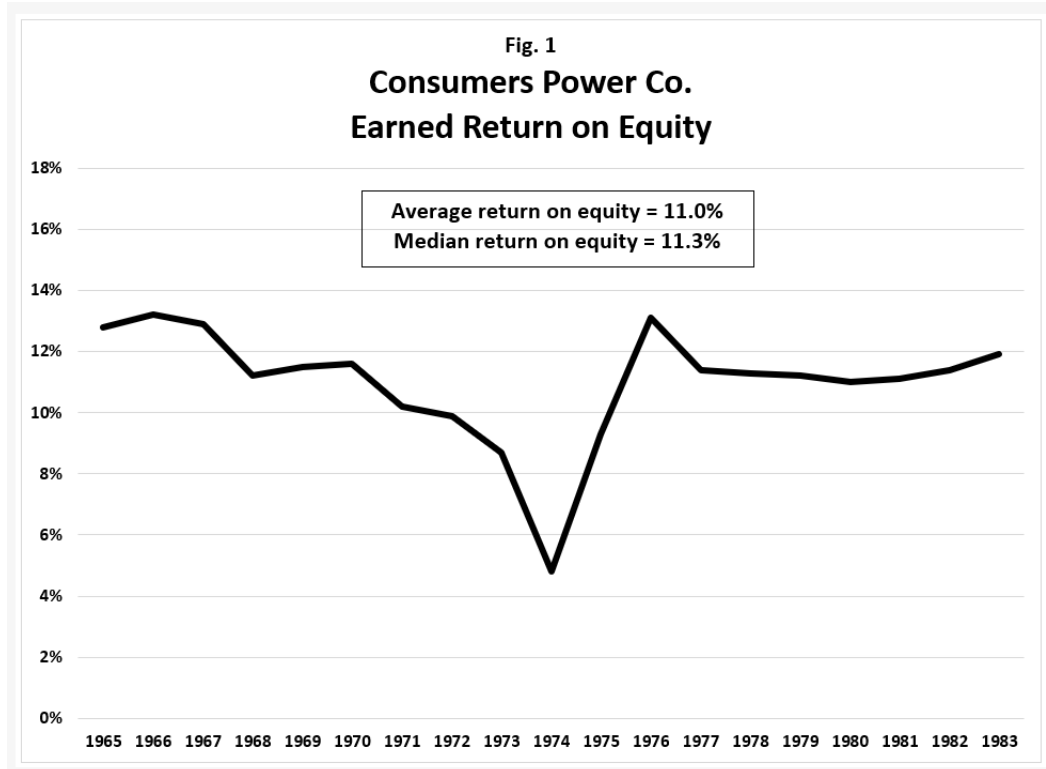
### 9   **III. THE ILLUSTRATIVE CASE OF CONSUMERS POWER: 1965 TO 1983**

10   **Q.     Please set the stage for your historical narrative**

11   A.     I examine the experience of Consumers Power Company of Michigan (“Consumers  
12           Power”) during the period 1965 to 1983, which was a particularly challenging period for all  
13           utilities, especially during the second half of that time span. Let me start with what the utility  
14           earned on its equity capital (ROE). The following figure shows Consumers Power’s ROEs  
15           earned in each year of this period. The dip in the middle of the time span relates to the  
16           impact of the 1973 OPEC oil embargo.<sup>3</sup>

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<sup>3</sup> The utility data in this example comes from Charles Phillips, Jr., 1988, *The Regulation of Public Utilities*, Vienna, VA: Public Utilities Reports.



Notice that there was a slight end-to-end downward trend in Consumers Power's ROEs, starting at 12.8% in 1965 and ending at 11.9% in 1981.

**Q. What is the next piece of the puzzle?**

A. Consider what was happening in the financial markets during this period. The following figure shows the yield on the 10-year U.S. Treasury note, which many investment analysts consider to be a foundational figure for determining the return investors require (cost of equity). Here we see a much different situation—a significant upward trend in that figure, starting at less than 5.0% in 1965 and reaching a peak of 14.0% in 1981, which is an increase of more than 900 basis points overall. End to end, the increase is over 700 basis points.



Recall that, in contrast, the utility's ROE was not increasing over this period but was slightly declining. Note that by the early 1980s investors could earn more on a risk-free Treasury Note than the ROEs Consumers Power earned. This did not augur well for those who had purchased the company's stock in the early part of the period and held it through the remaining years.

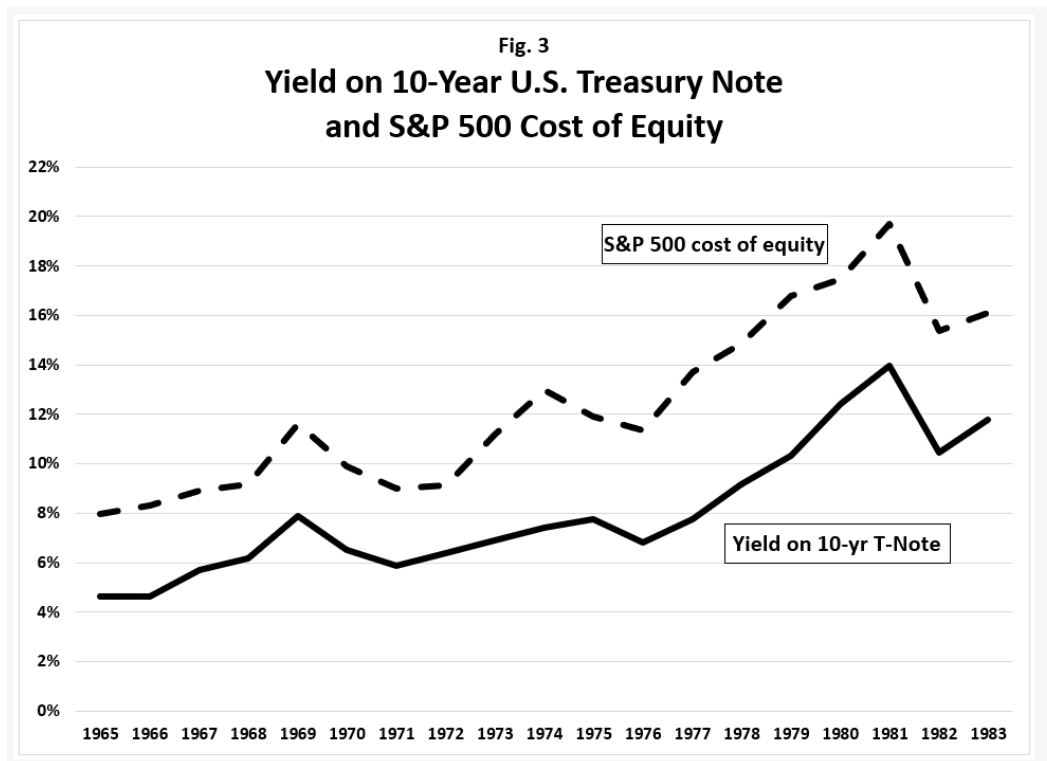
**Q. What is the next piece of relevant information?**

A. We need to convert the risk-free Treasury Note yield into the cost of equity, that is, the investors' expected/required return on utility stocks. Professor Aswath Damodaran of New York University reports forward-looking cost of equity estimates for the S&P 500 from 1960 to present, which moves us toward the utility cost of equity.<sup>4</sup> Adding the relevant years of that data to the figure we see the following.

<sup>4</sup> Source: Damodaran online. [https://\[pages.stern.nyu.edu/~adamodar/](https://pages.stern.nyu.edu/~adamodar/)



1



2

3 The situation looks even worse now that we see that investors were pricing stocks in general  
4 to produce expected returns as high as 20% in the early 1980s.

5 **Q. Can we estimate the cost of equity for utilities over the same period?**

6 **A.** Yes. We can convert that broad market cost of equity into a utility cost of equity using the  
7 CAPM.

8 
$$\text{Utility Cost of Equity} = \text{Treasury Yield} + \text{Beta}(\text{S\&P 500 Cost of Equity} - \text{Treasury Yield})$$

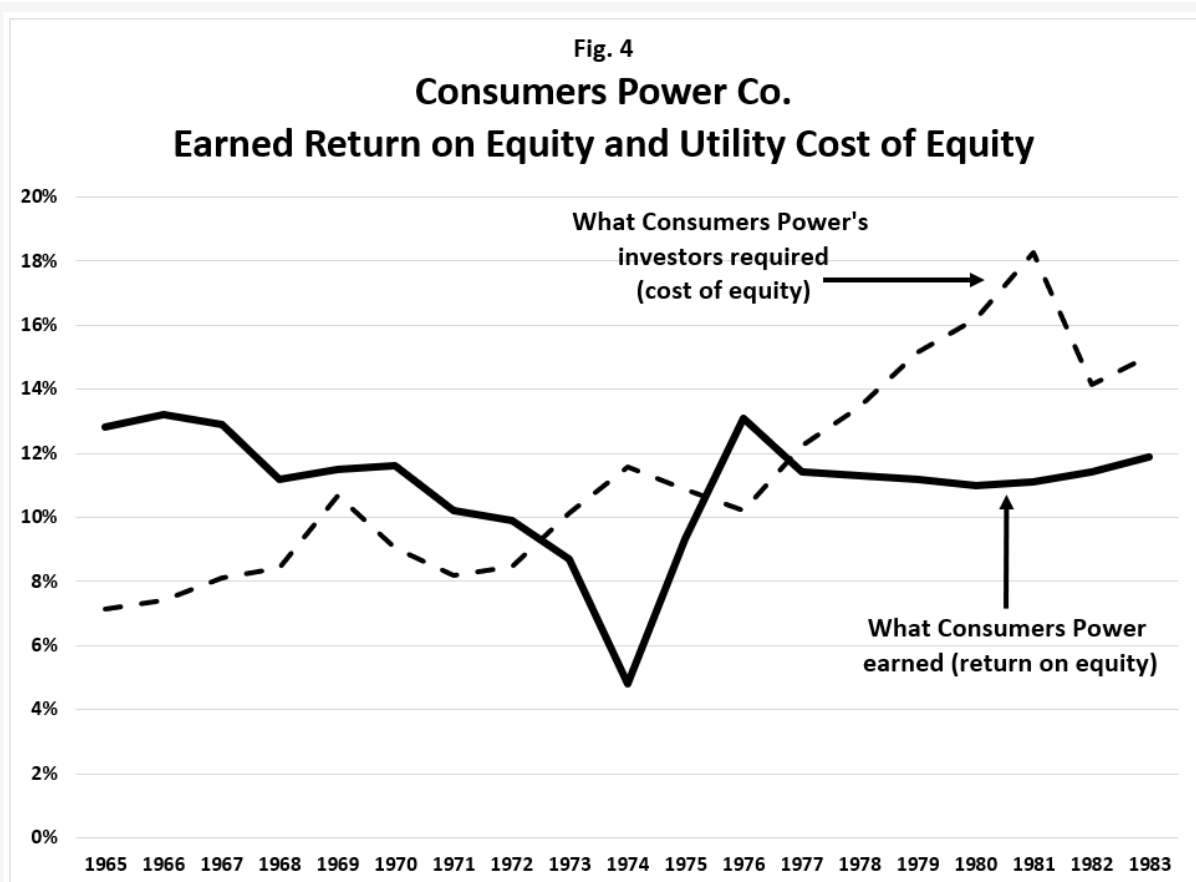
9 I use a beta coefficient of 0.75. The model shows how much utility costs of equity changed  
10 over this period.

11 1965  
12 utility cost of equity =  $4.7\% + 0.75(8.0\% - 4.7\%) = 7.1\%$

13 1981  
14 utility cost of equity =  $14.0\% + 0.75(19.7\% - 14.0\%) = 18.3\%$

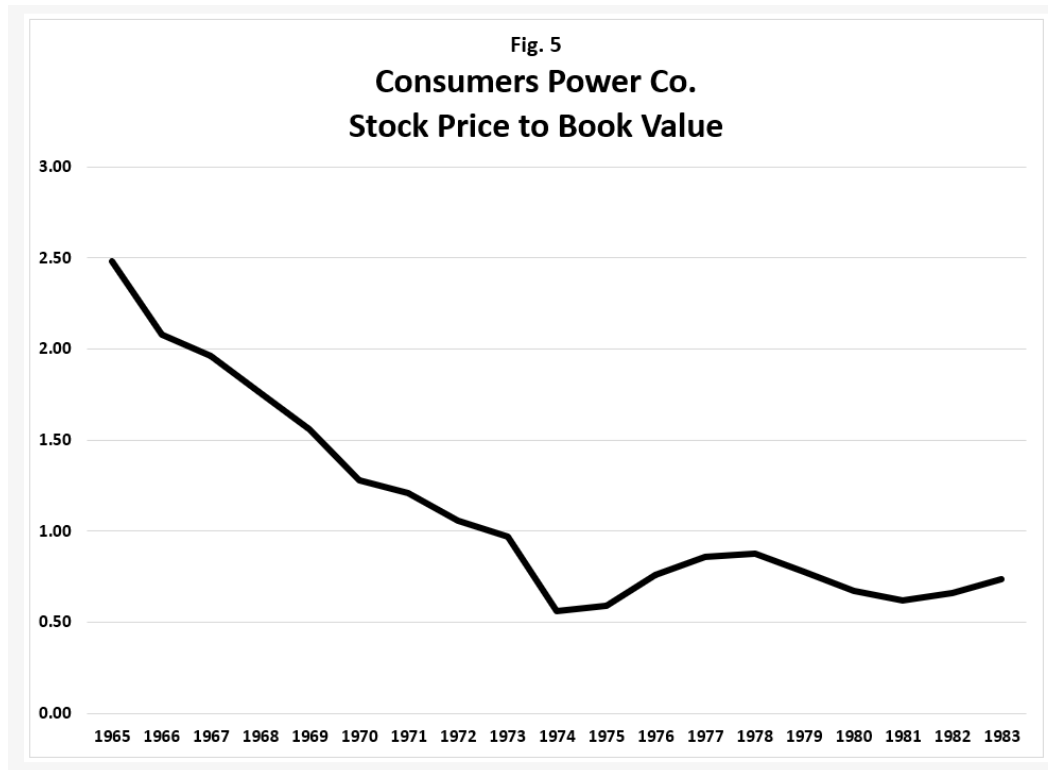
16

The utility cost of equity for the end of the period (1983) was 15.0%. So while the utility's ROEs were slightly declining from 12.8% to 11.9% over the entire period, the cost of equity was increasing by 800 basis points. In most years during the second half of the period under review, the ROE the utility earned was noticeably below the return investors expected to earn on utility stocks.



**Q. What happened to Consumers Power's stock price over this period?**

A. Not surprisingly, as the ROEs the utility earned failed to keep pace with, and then eventually fell behind, the returns investors expected when they invested in utility stocks, there was substantial market value destruction for Consumers Power's investors. See the following figure, which presents the data as a relative measure (stock price to book value).



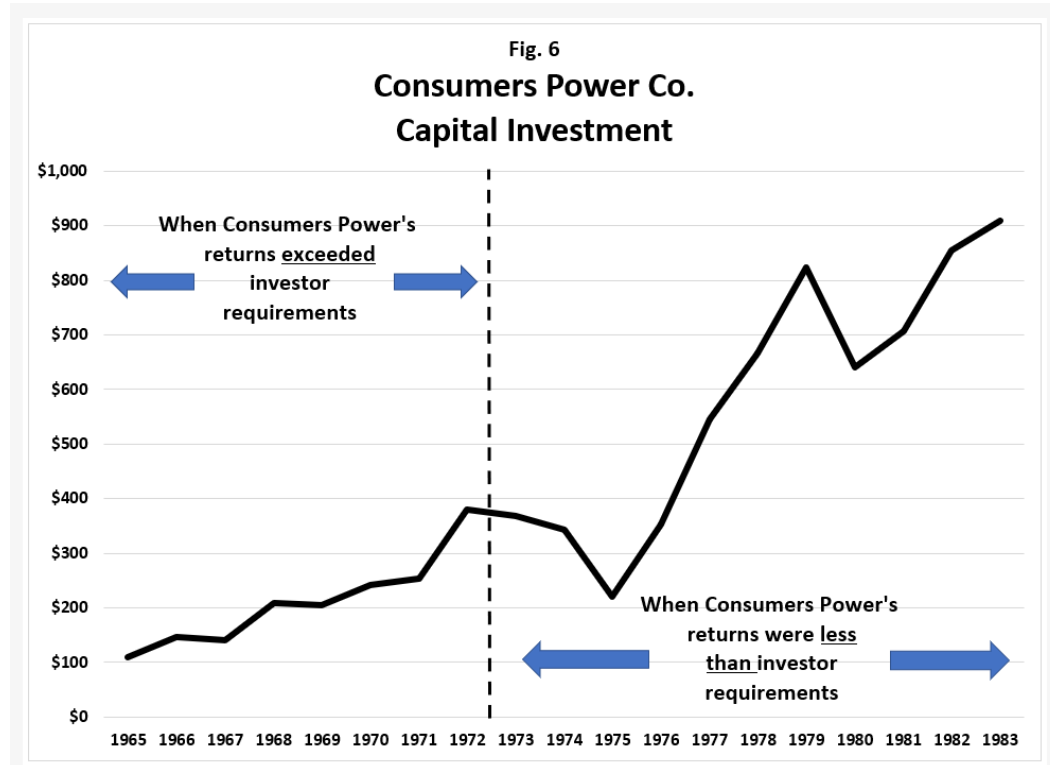
**Q. How should we interpret this figure?**

A. We see that the difference between the ROE and the cost of equity had a major influence on the utility's stock price. When the ROE exceeded the cost of equity (first half of the period), the utility stock price traded above book value; when the ROE was below the cost of equity (second half of the period), the stock price was less than book value.

**Q. Is that all we should take away from this figure?**

A. There is an even more crucial point. Once market participants had considered the difference between the ROE the utility earned on its books and the return investors expected to earn on utility stocks of similar risk (the cost of equity), they saw value in owning Consumers Power Company shares—the price was positive, not zero. This suggests that Consumers Power could have raised capital from rational, willing investors by selling new shares of stock in the market.

1 And it did. The following figure shows in fact that Consumers Power raised and  
2 invested \$5 billion when its ROEs were lower than the returns investors required, three  
3 times as much as it did when the opposite relationship held. This analysis provides  
4 overwhelming evidence that the ROE does not affect the ability of the utility to raise capital.  
5 We must stop saying that it does, because that is simply untrue.



6  
7 **Q. But why were rational investors willingly providing capital to the utility when the**  
8 **ROEs it earned were well below the returns those very investors required?**

9 **A.** That question contains an incorrect implied assumption. When they buy a utility stock,  
10 investors do not expect to earn the ROE the utility earns.<sup>5</sup> Consumers Power's relatively low  
11 ROE did not prevent capital from flowing to it because the financial markets price stocks to  
12 produce costs of equity, not ROEs. And the cost of equity is by definition the return the

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<sup>5</sup> The only exception being if the utility stock trades add book value.

investors expect/require. Equilibrium is achieved in the financial market and capital flows to the utility. The utility continues to struggle, but investors can reasonably expect to earn sufficient returns when they buy the utility stock. In the historical example, this seemingly paradoxical result is explained by noticing how little investors had to pay to purchase Consumers Power stock.

**Q. Please explain.**

A. The utility earns ROEs based on its book value. The investor expects to earn the cost of equity based on the prevailing market value (stock price). Since in the latter part of the period investors could buy Consumers Power's stock at a discount to book value, the investors would expect to make more on the stock than the utility did on its books.

**Q. Can you step through the mathematics to show how the investors' expected return on the stock differed from the ROE the utility earned?**

A. Yes. Think about this as buying utility assets on sale—Consumers Power was selling a *pro rata* share of its equity balance at less than cost (book value) because that was the only way it could attract new capital. In the latter half of the period under review, new capital providers were able to buy a claim on Consumers Power's book equity balances at \$0.60 on the dollar. Doing some initial simplified analysis for illustrative purposes,<sup>6</sup> if the utility earned 11% on equity and investors had to pay \$1.00 to obtain \$1.00 of book value they would expect to earn:

$$\text{expected investor stock return} = \frac{\text{book equity} \times \text{ROE}}{\text{price investor pays}} = \frac{\$1.00 \times 11\%}{\$1.00} = 11\%$$

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<sup>6</sup> This analysis assumes the utility pays out all earnings as dividends. The same qualitative conclusion can be reached with more complicated models that allow for earnings reinvestment rather than 100% dividend payout.

1 In 1981, an 11% return was too low because investors could expect to earn 18% returns on  
2 stocks of similar risk. Consumers Power was in the middle of big construction projects, and  
3 financial market conditions were unfavorable. Consumers Power needed capital—a lot of  
4 it—so its stock price declined to attract investors. It settled in at about \$0.60 on the dollar.  
5 The utility continued to earn 11% ROEs on every dollar of equity capital, but the new  
6 investors had to pay only \$0.60 to obtain a claim on that \$1.00 of equity investment. This  
7 changed the investors' expected stock return dramatically.

$$\text{expected investor stock return} = \frac{\text{book equity} \times \text{ROE}}{\text{price investor pays}} = \frac{\$1.00 \times 11\%}{\$0.60} = 18\%$$

9 Through the seeming alchemy of market pricing, investors converted an 11% ROE to an  
10 18% expected market return on Consumers Power's stock (cost of equity). This was  
11 sufficient to attract capital. Again: the low ROE did not prevent capital from flowing to the  
12 utility because the financial markets price stocks to produce costs of equity, not ROEs.

13 The utility made 11% (ROE) on its books; its investors expected to earn 18% on the  
14 company's stock (cost of equity). This was all made possible by a utility stock trading at  
15 \$0.60 on the dollar. This is how capital markets work, and this is why capital flows to  
16 utilities in almost any circumstance.

17 **Q. What does this imply?**

18 A. This shows why a concern about capital attraction is actually a non-issue when determining  
19 the just and reasonable ROE for Applicant. Setting those returns is critically important for  
20 all parties, but this isn't the issue the Commission should be concerned about. If the  
21 Commission wonders whether Applicant will be able to attract capital, we can rest assured  
22 that given essentially any ROE that the Commission might authorize in this case, WEC  
23 Energy Group's stock price will adjust to allow it to raise capital. In fact, it can attract just as

1 much capital at lower ROEs as it could at higher ROEs because the financial markets price  
2 stocks to produce costs of equity, not ROEs, as we just saw with the Consumers Power  
3 example.

4 **Q. Why are we first hearing about this now?**

5 A. We aren't. Kahn pointed this out in 1970 in the context of a higher ROE, but it also works  
6 with a lower ROE—in all cases, whether the ROE is raised or lowered, new investors expect  
7 to earn the same return, the one that manifests in the financial markets, not the rate of return  
8 the utility earns on its books. Regulators who attempt to offer new capital providers (new  
9 purchasers to use Kahn's term) a return other than the cost of equity will fail because the  
10 financial markets, which regulators do not control, will not allow this to occur.

11 Any attempt of a regulatory commission, persuaded by the comparable  
12 earnings argument, to permit investors the higher return would only be self-  
13 defeating. Investors would respond to the higher earnings per share by  
14 bidding up the prices of securities to the point at which new purchasers  
15 would earn only the old cost of capital on their investments. The only  
16 beneficiaries would be those who happen to own the stock at the time the  
17 policy change was announced or anticipated.<sup>7</sup>

18  
19 This is a central theme of my testimony. Higher or lower ROEs can help or hurt only those  
20 who already own the stock. They can never help or hurt investors who will be providing  
21 capital when the utility goes to market.

22 As such, new investors who will be offering capital do not see ROEs higher than the  
23 cost of equity as attractive, nor do they see ROEs less than the cost of equity as a deterrent.  
24 They will expect to earn the same return they would have before and after any ROE change.  
25 This results because new capital providers never expect to earn ROEs—at all times they  
26 expect to earn costs of equity. Yet today, most regulators set ROEs based on the incorrect

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<sup>7</sup> Alfred Kahn, 1970, *The Economics of Regulation: Principles and Institutions*, Cambridge, MA: MIT Press, p. 52(n).

1 notion that higher ROEs attract more capital than lower ROEs, and if the ROE is too low the  
2 utility will not be able to attract capital. Neither is true now nor have they ever been true.

3 That is not how capital markets work. Stock market pricing prevents either from occurring.

4 **Q. What implications does this have for regulatory financial policy?**

5 A. If we do not understand this fundamental aspect of corporate finance, and instead accept the  
6 myth that higher ROEs make it easier for companies to attract capital we have essentially  
7 rejected the entire corporate finance framework. That is guaranteed to lead to poor  
8 regulatory finance policies and ROEs that are higher than necessary. No matter where the  
9 Commission sets the ROEs in this case it need not have any concerns about the utilities  
10 attracting capital because prospective investors will expect to earn the same return on the  
11 company's stock if the ROEs are set at 8% or 12%. The company's stock price will be much  
12 different under these two ROEs, but the return new capital providers expect will be the  
13 same.

14 **Q. What then is the issue in this regard?**

15 A. By focusing on attracting capital from prospective investors when determining the proper  
16 ROE, we make two mistakes: (1) we focus on the wrong group of investors, and (2) we  
17 believe that the Commission must play the role of the financial markets. Both are  
18 fundamentally incorrect.

19 There is an investor group that we need to think about, and that is the present  
20 investors, those who already own WEC Energy Group's stock. They are exposed to any  
21 ROE changes, up or down, that are unexpected because those changes affect the company's  
22 stock price, creating either capital gains or capital losses for the present investors. This, not



1 concerns about attracting capital from new investors, is where all the investor tension is as it  
2 relates to setting the ROE.

3 We see from the Consumers Power example that it easily attracted capital at ROEs  
4 that were relatively low at the time, but its present investors were pummeled in the process,  
5 absorbing massive capital losses along the way. Wall Street investment banks can always  
6 raise capital, but they will not and do not promise the companies issuing the securities that  
7 they will like the price they get when they sell their securities.

8 **Q. Are the present investors the ones that have rights that must be considered by**  
9 **regulators?**

10 A. Yes. When the U.S. Supreme Court spoke about balancing consumer and investor interests,  
11 it was referring to the present investors, not prospective investors who aren't even identified  
12 at this point. The Commission cannot confiscate capital from investors who haven't  
13 provided any yet. The Court's concerns are about the present investors who have  
14 constitutional rights and deserve to be treated fairly. The capital attraction issue is a  
15 distraction because it is never a problem. The reason it is never a problem is because the  
16 present investors absorb the capital losses to make it work.

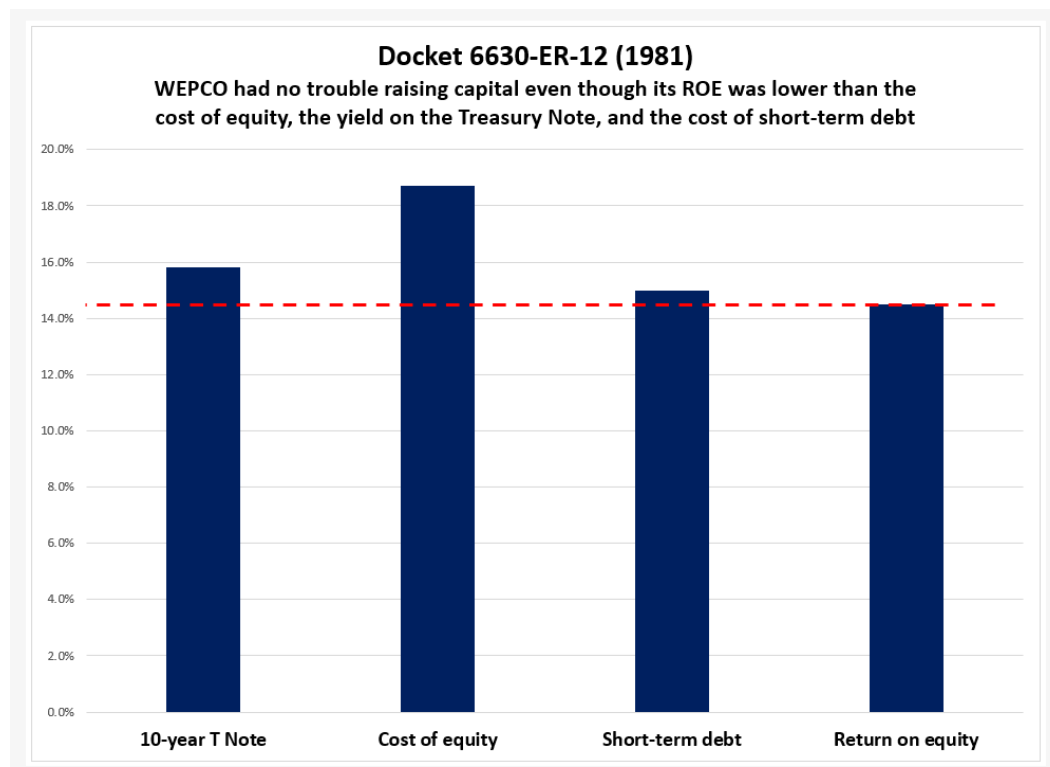
17 That is not to say that the Commission must preserve market value for present  
18 investors, but it is to say that it cannot abuse those investors. The Commission must find a  
19 balance between the interests of present investors and consumers. We can ignore the  
20 prospective investors because the capital markets will take care of them.

#### 21 **IV. WISCONSIN UTILITY DURING THE HISTORICAL PERIOD**

22 **Q. Did Wisconsin utilities face similar circumstances during the period under review?**

1 A. Yes. Though the Consumers Power situation was more challenging than most faced, all  
2 investor-owned utilities across the nation experienced similar conditions to some extent. I  
3 present here data for Wisconsin Electric, Applicant's sister utility. It is relevant because all  
4 utilities were in a similar situation.

5 Consider the following data from the Commission's 1981 order for Wisconsin  
6 Electric in Docket 6630-ER-12.<sup>8</sup>



7  
8 We see that the ROE was not only 420 basis points below the cost of equity, it was 50 basis  
9 points below the cost of short-term debt. To put this in perspective, it would be like setting  
10 Applicant's ROE today at about 3.0%. Yet capital flowed then and it would today.

11 **Q. How would that be possible?**

---

<sup>8</sup> The cost of equity was not reported in the order, but it was calculated using Professor Damodaran's S&P 500 cost of equity estimate for 1981 as applied in the CAPM.

1 A. WEC Energy Group's stock price would drop to well below book value. If the stock price  
2 drops enough, new capital providers will eventually see a value proposition. That was  
3 precisely what happened to Consumers Power. To be clear, I don't think such a result is fair  
4 in any way, but I want to show that utilities, with their obligation to serve, need to go to the  
5 capital markets even if conditions are adverse. We see that Consumers Power raised \$5  
6 billion of capital during horrible financial conditions but it needed to do so to keep its  
7 construction projects on track. The new capital providers weren't harmed; it did that on the  
8 backs of its present investors.

9 **Q. Returning to the 1981 order, what did the Commission conclude about WEPCO's**  
10 **ability to attract capital with such an ROE?**

11 A. The Commission concluded that a reasonable ROE would:

12 Allow sales of common stock at a reasonable relationship to underlying book  
13 value, permit additional issuances of all forms of capital at reasonable costs  
14 and maintain the financial integrity of the utility.<sup>9</sup>  
15

16 It set the ROE at 14.5%, which it suggested met those conditions. At that time the notion of  
17 a stock price trading at a reasonable relationship to its book value meant a market to book  
18 ratio close to, but still less than 1.0. In the early-1980s, to achieve market to book ratios of  
19 1.0, regulators would have had to set ROEs at 18% to 20%. That was simply too high.  
20 Regulators could not find that to be reasonable given the rate increases it would cause for  
21 utility customers so the present investors had to bear capital losses.

22 As a result, no utility stocks traded above book value in the late-1970s and early-  
23 1980s and many did not trade above book value for a decade or more. Nevertheless, this was  
24 a stable environment in terms of capital flows. Utility investors did not expect regulators to

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<sup>9</sup> Public Service Commission of Wisconsin, September 10, 1981, *Findings of Fact and Order, Application of Wisconsin Electric Power Company for Authority to Increase Its Electric Rates*, Docket 6630-ER-12.

1 set ROEs at the cost of equity, but rather to set them below that level. Investors then simply  
2 adjusted utility stock prices to produce required market returns and continued to provide  
3 capital (see how market pricing converted Consumers Power's 11% ROE into a 18%  
4 expected market return (cost of equity) for new capital providers). To enable the utility to  
5 attract capital Consumers Power's present investors lost about 75% of their market value,  
6 which would be even greater if we adjusted for inflation.

7 Under these conditions, Wisconsin Electric's stock price would have traded at about  
8 \$0.80 on the dollar relative to its book value (better than Consumers Power's relative stock  
9 price), but this discounted stock pricing is precisely what allowed capital to flow. If the  
10 stock price falls low enough capital will be forthcoming. That is how capital markets work.  
11 Capital will always be available. The question is how much pain the present investors can  
12 reasonably be expected to endure to ensure that this continues. The utilities are in a  
13 predicament here because they have an obligation to serve, so they cannot simply stop  
14 selling stock during challenging financial situations. This means that the Commission must  
15 play the arbiter, balancing present investor and consumer interests.

16 **Q. Did Wisconsin Electric raise capital during the period under review?**

17 A. Yes, capital flowed to the company unabated. The troubling times in the utility industry  
18 started in the mid-1970s. By 1981 Wisconsin Electric had just completed the first unit at  
19 Pleasant Prairie Power Plant (P4) under financing conditions similar to those faced by  
20 Consumers Power and was in the process of completing the second unit. It ultimately cost  
21 WEPCO \$753 million to build the facility, most of which was raised when its ROEs were  
22 lower than investors' required returns. I worked as a Commission staff analyst on this rate

1 case and no one, including the utility, raised concerns about capital attraction in the rate  
2 proceeding for one reason—there was no problem raising capital.

3 It is interesting to note that during my first stay at the Commission, 1980-1989,<sup>10</sup>  
4 concerns about capital attraction were essentially non-existent. Such concerns have risen to  
5 prominence only in the last decade or so. Ironically, the period today is one in which utility  
6 ROEs are well above investor return requirements. We need to understand that financial  
7 markets are extremely resilient and will price securities so that capital flows to utilities under  
8 nearly all circumstances. We never have to worry about capital attraction in all but the most  
9 extreme circumstances. And if 1981 was not extreme, then it is hard to imagine what would  
10 be.

## 11 12 **V. THE COURT’S CAPITAL ATTRACTION STANDARD**

13 **Q. But doesn't the US Supreme Court require that regulators set ROEs so as to maintain**  
14 **the ability of the utilities to attract capital?**

15 A. Yes, and that is exactly what the Commission did in 1981. It knew that if it set the ROE at  
16 14.5%, even though the cost of equity was above 18%, utilities would still have ready access  
17 to capital, which they did. And this was not a single year issue, but rather existed for about a  
18 decade.

19 The Court, when articulating the capital attraction standard, did not indicate how  
20 easy or difficult it would be to achieve it. Capital will flow to utilities under nearly all  
21 circumstances, so it's almost a given that any ROE will meet the capital attraction standard.  
22 Again, the real issue is how much pain can the present investors endure to ensure that capital

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<sup>10</sup> I rejoined the Commission in 1995, working there until the end of 2007.

flows to the utility if the regulator sets the ROE too low and how much pain consumers can endure if it sets the ROE too high.

**Q. But at any given point in time wouldn't the utilities that have higher ROEs be more attractive to investors than those that earn lower ROEs?**

A. No. If we think that through, we will see why that would never be the case. This is basic corporate finance. The reason is the same as that which we observed for Consumers Power; stock market pricing will ensure that capital flows freely to all utilities regardless of their ROEs. If the risks the investors face by buying the stocks are the same then the expected return on those stocks (cost of equity) will also be the same even if the ROEs are different.

As explained in *Analysis for Financial Management*, market pricing of common stocks will eliminate any market gains to prospective investors associated with high ROEs.

It is not enough for investors to find companies capable of generating high ROEs; these companies must be unknown to others, because once they are known, the possibilities of high returns to investors will melt away in higher stock prices.<sup>11</sup> Emphasis added.

**Q. Do you have a numerical example of that?**

A. Yes. Several. Let me start with a two-stock example and then move to a broader portfolio analysis. We might think that WEC Energy Group with its expected holding company ROE of 12.5% (see *Value Line Investment Survey*) would attract more interest from investors than would Portland General with its expected ROE of 8.5%. Proportionally, the former earns an ROE that is 47% higher than the latter. The apparent shine on WEC Energy Group stock is dulled substantially (completely), however, when we realize we have to pay 82% more per dollar of book value to buy its stock than we would to buy Portland General's. The precise

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<sup>11</sup> Robert C. Higgins, Jennifer L. Koski, and Todd Mitton, 2019, *Analysis for Financial Management*, New York: McGraw-Hill Education, p. 56.

1 expected return on the stocks depends on more than just the difference between ROEs and  
2 relative stock prices, but we should see that it is not clear on its face that WEC Energy  
3 Group stock is more attractive than Portland General's. It very well may be that Portland  
4 General offers the better deal for investors today, or at least many of them might think so.

5 This is the sort of melting away of the return advantage that high ROE companies  
6 would at first seem to offer, as referred to in the quote from *Analysis for Financial*  
7 *Management*. In efficient capital markets the only thing that matters in terms of the  
8 investors' expected return is the risk that investors face when they buy the stock. If two  
9 companies have approximately the same risk, then regardless of the ROEs they earn on their  
10 books their investors will expect to earn the same return on their stocks.

11 **Q. Can you provide additional evidence of this?**

12 A. Yes. We can see that by examining the capital asset pricing model (CAPM). It provides us  
13 with an estimate of the expected return on stocks. Where does the ROE that a company  
14 earns enter that model? It does not because it is irrelevant when developing expected return  
15 estimates.

16 The key driver of that expected or required return on a stock is the beta coefficient.  
17 Per *Value Line*, WEC Energy Group, Xcel Energy, and IDACORP all have common stock  
18 beta coefficients equal to 0.80. Therefore investors will require the same return on all three  
19 stocks, and market pricing will push the expected returns to those levels, even though the  
20 three utilities have noticeably different projected ROEs at 12.5%, 10.5%, and 9.0%,  
21 respectively. They are priced at 2.9, 2.6, and 2.1 times book value, respectively. This is the  
22 melting away of the ROE advantage that finance principles teach us about.

23 **Q. Is there an analogy that might be illustrative here?**

A. I think so. BMWs are generally assumed to be better cars than Kia's. But Kia attracted 340,000 more automobile buyers than BMW in the U.S. in 2021.<sup>12</sup> We know why. Over the range of Kia models the median list price is about \$25,000; that figure for BMW is about \$75,000.

A utility that generates a high ROE is like a high-quality automobile. The stock price is like the sticker price that the buyer must pay to purchase it.

**Q. Can you provide more detail on that?**

A. Yes. If we rank the companies in Ms. Bulkley's proxy portfolio by ROEs, we can form two sub-portfolios, those earning lower than average ROEs (on the left) and those earning higher than average ROEs (on the right).

Investors Must Pay Much More for the Stocks  
of High Return on Equity Companies

LOW ROE COMPANIES			HIGH ROE COMPANIES		
	MEDIAN ROE	P/B		MEDIAN ROE	P/B
Edison International	5.5%	1.68	Black Hills Corporation	9.1%	1.68
Duke Energy	7.1%	1.75	IDACORP Inc	9.4%	1.99
Avista Corp	7.3%	1.40	NiSource	9.7%	2.16
Eversource Energy	7.5%	1.61	Ameren Corp	10.2%	2.33
ALLETE	7.7%	1.30	Xcel Energy	10.2%	2.44
Northwest Natural Gas	7.9%	1.78	NextEra Energy	10.2%	4.15
Spire Inc	8.1%	1.51	American Electric Power	10.3%	2.14
Portland General	8.5%	1.63	Alliant Energy	10.9%	2.43
ONE Gas	8.8%	2.25	Otter Tail Corp	11.1%	2.81
Eversource Energy	8.8%	1.97	Entergy Corp	12.1%	1.92
NorthWestern Corp	8.8%	1.32	New Jersey Resources	12.1%	2.56
Atmos Energy	8.9%	1.87	Southern Co	12.5%	2.75
South Jersey Industries	9.0%	2.00	CMS Energy	13.7%	2.99
<b>MEDIAN</b>	<b>8.1%</b>	<b>1.68</b>	<b>MEDIAN</b>	<b>10.3%</b>	<b>2.43</b>

**Q. What does this figure show us?**

A. At first blush we might seem to prefer the utilities on the right that earn ROEs 27% higher than those on the left (10.3% versus 8.1%). That attractiveness fades away, however, when

<sup>12</sup> Source: CarPro.com



1 we notice that to buy the stocks of the higher ROE companies, we must pay a 50% stock  
2 price premium (2.43 times book value versus 1.68 times book value). That differential  
3 dilutes the influence of the ROE for the high-return companies much more than it does the  
4 influence of the ROE for the low-return companies. BMW is on the right; Kia is on the left,  
5 but in the form of utility stocks.

6 Once we sort through all the mathematics to determine the investors' expected  
7 returns on the two portfolios, we find that they are essentially the same. This must be the  
8 case if these companies are of approximately the same risk, which Ms. Bulkley suggests  
9 they are by using them as the proxy portfolio.

10 **Q. An increase in the ROE must help someone, isn't that correct?**

11 A. Yes. This takes us back to the investors who matter—those who currently hold the utility's  
12 stock. They will absorb all gains and losses associated with changes in ROE. Notice that the  
13 prospective investors can neither gain nor lose from those changes if they have not yet  
14 purchased the stock of the company.

15 One point should be made clear. When we speak of prospective investors, we are not  
16 talking about those who buy and sell the stock in the secondary market. That does not create  
17 any capital flow for the utility. The prospective investors of interest are those that will buy  
18 new shares of stock that the company issues when it needs additional capital. Higher ROEs  
19 help investors who already own the stock, not those who are going to provide new capital  
20 when the utility issues new shares. The new investors will have to pay the higher price to  
21 purchase the stock. This is the melting away of the illusory higher return for new capital  
22 providers.

1 **Q. So new capital is eventually provided by prospective investors, but the present**  
2 **investors bear all the consequences of Commission ROE determinations?**

3 A. Yes. In this way increased ROEs are windfalls, because the existing investors do nothing to  
4 earn them and they are earned *ex ante* because the value of the higher ROEs is impounded  
5 in the stock price before the utility issues new shares. MIT finance professor Stewart Myers  
6 explains this in his *Bell Journal of Economics and Management Science* article on applying  
7 finance principles in utility regulation.

8 Note that an opportunity to invest in a project offering more than the cost of  
9 capital generates an immediate capital gain for investors. This is a windfall  
10 gain, since it is realized *ex ante*.<sup>13</sup>  
11

12 Higher ROEs are not about creating attractive opportunities for new capital providers; they  
13 are about making the present investors wealthier through capital gains. This is not unique to  
14 the utility industry; it is how all investor-owned corporations operate and how they create  
15 value for their present investors, whose interests management represents.<sup>14</sup>

16 **Q. So all the focus is on creating value for the present investors, not offering attractive**  
17 **returns to prospective investors?**

18 A. That is correct. When companies raise new capital, the present investors and the prospective  
19 investors have conflicting interests. In a securities issuance, the company operates at arm's  
20 length from those who will provide new capital. The present investors want the new  
21 investors to pay as much as possible for the new shares of stock; the prospective investors  
22 want to pay as little as possible for those shares. Utility management can represent only one  
23 of those groups, and its governance obligations require that it represent the present investors.

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<sup>13</sup> Stewart C. Myers, 1972, The application of finance theory to public utility rate cases, *Bell Journal of Economics and Management Science*, 3(1), p. 80.

<sup>14</sup> Myron Gordon, 1974, *The Cost of Capital to a Public Utility*, East Lansing, MI: MSU Public Utility Studies.

1 **Q. Returning to the Myers quote, if the ROE is lowered, that again affects only the**  
2 **present investors?**

3 A. Yes. This cuts both ways—the present investors capture all the capital gains from any  
4 increased ROEs, but they also incur all the capital losses from any lowered ROEs.<sup>15</sup> Before  
5 the utility issues new shares, stocks are repriced to reflect the ROE changes. Prospective  
6 investors are unaffected in either case, which is why changes to ROE do not affect capital  
7 attraction. This again is basic corporate finance. The group of investors that is exposed to  
8 Commission changes in ROEs are not those who might at some point provide capital. They  
9 can fend for themselves. The Commission must be cognizant of the fact that if it lowers the  
10 ROE, the present investors, those who currently hold WEC Energy Group stock, will likely  
11 suffer capital losses. The Commission has no obligation to prevent all capital losses—it  
12 should set the ROE to strike a balance between investors and consumers—but in those  
13 deliberations it should be aware of the degree to which a lower ROE might cause such stock  
14 price declines.

15 This is truly about finding balanced solutions. Higher ROEs help present investors  
16 and hurt consumers; lower ROEs hurt present investors and help consumers. Neither party's  
17 rights are superior to the other's.

18 **VI. FOUNDATIONAL CONCEPTS**

19 **Q. Are there any other preliminary points you would like to make before you discuss the**  
20 **body of your testimony?**

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<sup>15</sup> This assumes that any ROE changes were unanticipated and not already reflected in the company's stock price.

1 A. Yes. Some of these definitions might have been inferred from the discussion of the historical  
2 data, but to be complete I will provide a description of all key terms. There are four returns  
3 that come up in discussion of utility financial issues. Rates of return (return on equity,  
4 overall rate of return) relate to what the utility earns on its books. Costs of capital (cost of  
5 equity, overall cost of capital) relate to what investors require or expect to earn on utility  
6 securities, not what the firms themselves earn. See Alfred Kahn in *The Economics of*  
7 *Regulation*. He describes the cost of capital as follows.

8 [It] is what investors could obtain by buying the *securities* of other  
9 companies in the open market—not what the companies themselves earn on  
10 a dollar of additional investment.<sup>16</sup> (Emphasis in original.)  
11

12 **Q. Does this mean that the cost of equity and the cost of capital do not appear on**  
13 **company's financial statements?**

14 A. This is correct, and understanding that point is crucial to understanding modern corporate  
15 finance. One can never find a company's cost of equity or cost of capital by looking at its  
16 financial statements. And the Commission cannot set the cost of equity or the cost of capital,  
17 because they are determined in the financial markets. The Commission sets the return on  
18 equity (ROE) and the rate of return (ROR).

19 Yet in regulatory discussions we often hear parties talking about the cost of equity  
20 the utility will earn. Utilities don't earn costs of equity; they earn ROEs. See the Consumers  
21 Power example. This is more than semantics. All else equal, a higher ROE increases the  
22 value of the utility stock. A higher cost of equity decreases that stock price. Consider the  
23 following stock pricing model, referred to as the residual income model.

$$\text{stock price} = \text{book value} + \frac{(\text{ROE} - \text{cost of equity}) \times \text{book value}}{(\text{cost of equity} - \text{sustainable growth})}$$

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<sup>16</sup> Alfred Kahn, *supra*, p. 52.

Examine the second term on the right side of the equation. We see that not only are the ROE and the cost of equity not the same variable, they work in opposition to each other in terms of value creation. If we confuse these two returns the entire financial analysis becomes muddy.

**Q. Explain the differences between these four returns.**

A. The cost of equity and the cost of capital are different returns in that the latter is the weighted average expected return on the company's debt and equity securities, not just the equity portion. The companion accounting return, the one analogous to ROE, is the return on invested capital, which in regulation often simply goes by the name rate of return (ROR). This can be explained with the following graphic.

Capital Type	Alternative Rate of Return Constructs	
	ACCOUNTING RETURN the UTILITY Earns on the Capital Balances on Its FINANCIAL STATEMENTS	MARKET RETURN INVESTORS Expect to Earn When Holding the UTILITY'S SECURITIES
Equity Only	ROE	cost of equity
Debt and Equity	ROR	cost of capital

These are four distinct returns. There are additional differences between these returns that do not meet the eye. In contrast to the book value weights that are used to determine the ROR, the cost of capital relies on market values of debt and equity. The key point to note is that if the ROE is greater than the cost of equity, or the ROR is greater than the cost of capital, then the firm is earning returns that exceed those that its investors require.

**Q. Are these returns treated as distinct in regulatory proceedings?**

A. In most cases they are not. Many people see only two distinct returns, not four, treating ROE (a book return) and cost of equity (a market return) as one set of synonyms, and ROR (a

1 book return) and cost of capital (a market return) as another set of labels for the same  
2 return.<sup>17</sup> Both are contrary to basic finance principles as explained by Ezra Solomon, one of  
3 the pioneers of modern corporate finance, writing about the returns discussed in utility  
4 regulation.

5 Understanding that book rate measures [ROE] and DCF rate measures [cost  
6 of equity] are not different estimates of the same thing but rather estimates of  
7 different things should eliminate at least part of the confusion surrounding  
8 'rates of return' on investment."<sup>18</sup> (Emphasis in original.)  
9

10 If we do not make this distinction, then we are not applying modern corporate finance  
11 principles and techniques.

12 **Q. Which of these returns do you focus on in your testimony?**

13 A. I focus primarily on two of these returns, the ROE and the cost of equity. Once I present my  
14 estimate of the cost of equity, I then discuss ROE recommendations for Applicant  
15 (Wisconsin Public Service Corp) developed in collaboration with Mr. Corey Singletary,  
16 CUB's Director of Regulatory Affairs. Those figures, when set appropriately, require  
17 consideration of both investor and consumer interests, as per the U.S. Supreme Court.<sup>19</sup> Mr.  
18 Singletary looks more closely at the consumer side. Under our proposal utilities that do not  
19 do a good job in serving their customers deserve a lower ROE than those who do an  
20 exemplary job. I explain that in more detail at the end of the testimony.

21 **Q. Is there an overarching theme in this testimony?**

22 A. Yes. I present evidence that, in contrast to the period reviewed earlier, for approximately the  
23 past four decades regulators have systematically set ROEs in excess of the returns investors

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<sup>17</sup> Or conflating the ROR and the cost of capital.

<sup>18</sup> Ezra Solomon, 1970, Alternative rate of return concepts and their implications for utility regulation, *Bell Journal of Economics and Management Science*, p. 121; 157.

<sup>19</sup> *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942).

1 require. In some cases that may be appropriate, especially when utilities have performed  
2 well in terms of providing social or customer benefits. The problem is that all utilities,  
3 regardless of performance, have been receiving authorized ROEs in excess of investor  
4 required returns for several decades.

5 **Q. Who else shares the concerns about flaws in the regulatory process?**

6 A. Numerous parties, as I discuss below, but let me begin with one particularly interesting  
7 perspective. Leonard Hyman was for many years Merrill Lynch's chief utility equity  
8 analyst. In 2017, he and his colleague William Tilles wrote a blog piece entitled "The  
9 Problem With U.S. Public Utility Regulation." They discuss the great interest in moving  
10 toward incentive-based regulation but suggest the need for a significant preliminary step.

11 We understand the appeal and novelty and the desire of regulators and  
12 policymakers to try something different. So-called regulatory innovation  
13 always has a built in, supportive clientele of likely beneficiaries—an  
14 economic eco-system of sorts. But for the regulators, perhaps doing the job  
15 they presently have better would be a good start.<sup>20</sup> Emphasis added.

16  
17 What may be surprising to learn is that Hyman, the former utility equity analyst, and his  
18 colleague think not that utility ROEs have been set too low, but rather that they have been  
19 set too high and not just in recent years but in general. They continue.

20 Financial theory tells us that when a company's stock sells at a price above  
21 book value (based on accounting costs), that company is earning more than  
22 its cost of capital...Utility law in the U.S. generally calls somewhat  
23 ambiguously for regulators to set a "fair" rate of return, which most define  
24 today as cost of capital...For most of our recent history, utility stocks have  
25 sold at prices far above book value. Successful companies should earn  
26 something in excess of their cost of capital, as a precautionary matter. But  
27 how much more? And just as important, given long term utility stock price  
28 behavior, have regulators become excessively generous at the expense of  
29 consumers?<sup>21</sup>  
30

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<sup>20</sup> Leonard Hyman and William Tilles, November 27, 2017, The Problem With U.S. Public Utility Regulation, *Oil Price.com*.

<sup>21</sup> *Id.*

1    **Q.     What is your view on Hyman’s criticism?**

2    A.     I agree with him and his colleague that there is a problem and that we cannot fix this  
3           problem if we do not first fix the framework. And the fix is rather straightforward and need  
4           not be done in any special investigation; this is a rate case issue. In these proceedings we  
5           must recognize where finance models are relevant and where they are not. Where they can  
6           guide us, we must apply them in ways consistent with fundamental finance principles.

7                 In docket 5-EI-158, CUB raised the issue of ROE reform. This testimony, along  
8           with that of Mr. Singletary, sets forth our proposal. This will require a fresh look at some  
9           ideas and practices that have become automatic or instinctual, referred to in the decision  
10          sciences literature as default thinking.

11   **Q.     What is the problem with the existing framework?**

12   A.     The conventional but mistaken wisdom in regulation is that ROE and cost of equity are  
13          either the same concept or that ROEs are numerically equal to costs of equity. The  
14          Consumers Power example should have demonstrated that neither is true. The conventional  
15          approach assumes that setting the just and reasonable ROE is strictly a financial modeling  
16          problem instead of a public policy problem that has both financial and non-financial  
17          components. To make matters worse, those finance models are then applied in ways that  
18          violate basic notions of corporate finance as I discuss later in this testimony.

19   **Q.     How do you propose to remedy this situation?**

20   A.     I set forth the proper process, one that has long been suggested by independent observers of  
21          utility regulation, which better frames the Commission’s determination of a just and  
22          reasonable ROE. The ultimate goal of the ROE determination is a balancing of consumer



1 and investor interests. Even financial experts agree that financial models cannot spit out a  
2 just and reasonable ROE.

3 **Q. Why do you say that finance experts agree that financial models cannot guide us to the**  
4 **proper ROE?**

5 A. MIT finance professor Stewart Myers states in his *Bell Journal of Economics and*  
6 *Management Science* article on applying finance theory to public utility rate cases:

7 Finance and economics are not very helpful when the problem of regulation  
8 is framed as ‘consumers vs. investors.’<sup>22</sup>

9  
10 But that of course is exactly how regulation is framed in the U.S. Supreme Court’s 1942

11 *Federal Power Commission v. Natural Gas Pipeline Co.* case:

12 The requirements of ‘just and reasonable’ embrace among other factors two  
13 phases of the public interest: (1) the investor interest; (2) the consumer  
14 interest.<sup>23</sup>

15  
16 Financial analysis can help us address only the first issue, investor interests.

17 . The point is that we can use finance models as inputs to the ROE determination, but  
18 if we are relying solely on those models to select the final ROE we are probably doing it  
19 incorrectly. Neither the field of finance nor law suggests that the determination of the just  
20 and reasonable ROE is a strictly finance problem. Other factors need to be considered to set  
21 the ROE appropriately.

22 **Q. How would you describe the general process of setting ROEs in recent decades?**

23 A. Regulators seem overly cautious when setting ROEs, not overtly recognizing that this  
24 cautious approach is expensive for utility customers. The regulators’ approach is  
25 imbalanced, as Hyman and his colleague suggest, not cautious. When we see that the ROE

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<sup>22</sup> Stewart C. Myers, 1972, The application of finance theory to public utility rate cases, *Bell Journal of Economics and Management Science*, 3(1), p. 80.

<sup>23</sup> *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942), pp. 606-607.

1 level does not affect the ability of the utility to raise capital and that maintaining strong bond  
2 ratings costs customers more, not less, when paying for capital (see my later testimony), this  
3 opens the door for more appropriate balancing of consumer and investor interests when  
4 setting the ROE.

5 **Q. How should the Commission determine that just and reasonable ROE?**

6 A. In the framework I propose, the cost of equity estimate (investors' required return on utility  
7 stocks) that I develop is an input to, not the target for, the just and reasonable book ROE (a  
8 different return). Mr. Singletary analyzes Applicant's performance in terms of meeting the  
9 needs of their customers. He and I then jointly develop CUB's ROE recommendations for  
10 Applicant, combining my technical analysis of investor expected/required stock returns and  
11 his analysis of Applicant's responsiveness to customers to reach those recommended  
12 figures.

## 13 **VII. CORRECTING MISUNDERSTANDINGS ABOUT CORPORATE FINANCE**

14 **Q. You have discussed the fact that many people in regulation today believe that high**  
15 **ROEs attract more capital than low ROEs (they don't) and that the ROE and the cost**  
16 **of equity are the same return (they aren't). Why is there so much confusion about**  
17 **corporate finance issues in regulation?**

18 A. Most people considering financial issues in regulatory proceedings believe that corporate  
19 finance is just common sense. That is a dangerous assumption. As Harvard professor Mihir  
20 Desai notes in his book *How Finance Works*: "The central intuitions of finance are  
21 slippery."<sup>24</sup>

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<sup>24</sup> Mihir Desai, 2019, *How Finance Works: The HBR Guide to Thinking Smart About the Numbers*, Boston: Harvard Business Review Press, p. 4.

1           Take the seemingly well-established concept that firms should maximize their  
2           profits to best represent their investors. Finance principles teach us that such an approach is  
3           folly.

4   **Q.   Why do you say that?**

5   A.   Brealey, Myers, and Allen, in *Principles of Corporate Finance*, write that profit  
6           maximization is not only an imperfect objective, it is also a nonsensical idea: “Profit  
7           maximization makes no sense as a corporate objective.”<sup>25</sup>

8           Those hoping to find support for profit maximization in economics will come up dry  
9           there as well. First, the profits that economists refer to, appropriately named economic  
10          profits, are measured differently from the way firms report them (firms report accounting  
11          profits, not economic profits), so when managers think that economics teaches them to  
12          maximize profits they are looking at the wrong measure of profits. In many cases firms  
13          report positive accounting profits, but when we calculate economic profits we find that they  
14          are negative.

15          And even if we measured them correctly, maximizing that refined version of profits  
16          doesn't work. The profit maximizing behavior we all learned about in principles of  
17          microeconomics applies under perfect competition, with perfect certainty, for a single  
18          period, none of which applies in the real world. Varian wrote, in *Intermediate*  
19          *Microeconomics*:

20                If there is uncertainty about a firm's stream of profits, then instructing  
21                managers to maximize profits has no meaning.”<sup>26</sup>  
22

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<sup>25</sup> Richard A. Brealey, Stewart C. Myer, and Franklin Allen, 2006, *Principles of Corporate Finance*, New York: McGraw-Hill Irwin, p. 24.

<sup>26</sup> Hal Varian, 2014, *Intermediate Microeconomics*, New York: W. W. Norton & Co, p. 366.

1 As strange as it may sound to those not familiar with the fields, pursuing a profit  
2 maximization strategy is both nonsensical and meaningless in any real-world setting. It is a  
3 failure to understand such counterintuitive aspects of finance and economics that leads to  
4 regulatory frameworks that are inconsistent with even the most basic principles in those  
5 fields. This is how regulation lost its way.

6 **Q. If profit maximization is not the objective of an investor-focused firm, what is?**

7 A. We can return to Varian:

8 In a world of uncertainty, maximizing stock market value still has meaning.  
9 If the managers of a firm attempt to make the value of the firm shares as  
10 large as possible then they make the firms owners—the shareholders—as  
11 well off as possible. Thus maximizing stock market value gives a well-  
12 defined objective function to the firm in nearly all economic environments.<sup>27</sup>  
13

14 **Q. Can you provide any real-world evidence to support the claim that profit**

15 **maximization is not consistent with stock price maximization?**

16 A. Yes. This is not just a theoretical position as utility investors know all too well. A Goldman  
17 Sachs equity strategist writing in the *Financial Analysts Journal* reported that from 1969 to  
18 1987, a period of almost two decades, the stocks of utilities that grew their profits (measured  
19 as earnings-per-share) the fastest performed poorly and were in fact significantly  
20 outperformed by the stocks of utilities that grew their profits the slowest.<sup>28</sup> Since few utility  
21 CEOs' tenures last as long as 20 years, it is conceivable that many of those executives  
22 heading companies during this period saw their profits rise every year through additional  
23 capital investment and at the same time saw their stock prices fail to keep track with those of

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<sup>27</sup> *Id.*

<sup>28</sup> Robert C. Jones, 1990, Designing factor models for different types of stocks: what's good for the goose ain't always good for the gander, *Financial Analysts Journal*, 46(2), 25-30.

1           their slower growing counterparts. This result makes perfect sense if we view it through a  
2           financial lens instead of an accounting one.

3   **Q.    Are there other common misconceptions manifest in regulation?**

4   A.    Yes. Many people believe that a firm's cost of equity is a function of all the risks it faces.  
5           Following this logic, if regulators take actions that increase utility risks, investors will  
6           demand higher returns on utility stocks. As a general rule that is incorrect. As UCLA  
7           finance professor Bradford Cornell states in his text *The Equity Risk Premium*:

8                   Despite its fame, this risk return tradeoff is misleading. In fact, it is incorrect,  
9                   unless risk is precisely and properly defined.<sup>29</sup> Emphasis added.

10  
11 **Q.    How is risk properly defined?**

12 A.    The risk that is relevant in this regard is that which investors face, not what the company  
13           faces. Both academic and applied finance practitioners stress the point that most risks a  
14           company faces do not affect its cost of capital because investors diversify away the effects  
15           of most risks by holding stocks in portfolios. As per McKinsey & Co. management  
16           consultants:

17                   Investors will not demand a higher return for any risks that can be eliminated  
18                   through diversification. They require compensation only for risks they  
19                   cannot diversify away. The risks they cannot diversify away are those that  
20                   affect all companies—for example, exposure to economic cycles. However  
21                   since most of the risk that companies face are, in fact, diversifiable, most  
22                   risks don't affect a company's cost of capital.<sup>30</sup>

23  
24 **Q.    Can you provide examples of risks that do not affect a company's cost of capital or**  
25 **cost of equity?**

---

<sup>29</sup> Bradford Cornell, 1999, *The Equity Risk Premium: The Long-Run Future of the Stock Market*, New York: John Wiley & Sons, p. 131.

<sup>30</sup> Tim Koller, Marc Goedhart, and David Wessels, 2020, *Valuation: Measuring and Managing the Value of Companies*, Hoboken, NJ: John Wiley & Sons, p. 58.

1 A. Yes. The McKinsey experts go on to explain that some of the biggest threats to individual  
2 companies, such as technological obsolescence or competition, are never risks that affect the  
3 cost of capital because these are about allocation of resources between firms, not about  
4 increases or decreases in the size of the economic pie that drives markets broadly.

5 The unique risk that any company faces—say product obsolescence and new  
6 competition—are not priced into the cost of capital.<sup>31</sup>  
7

8 **Q. Are the McKinsey consultants suggesting that such risks aren't important to firms?**

9 A. No. Those risks are very important to the firms who face them as they affect the value of  
10 their companies' stocks. Those risks just aren't important to institutional investors who hold  
11 the stocks of those companies in diversified portfolios because the random events that affect  
12 individual firms do not have much effect on the value of those portfolios. The risk of a  
13 portfolio can be lower than that of the least risky stock in the portfolio when the stocks are  
14 viewed as stand-alone investments. See Ex.-Kihm-CUB-2.

15 When firms compete with each other, gains for some companies offset losses for  
16 others. This is happening across the economy, and such reallocation of resources between  
17 firms has little effect on the value of diversified investment portfolios. For example, an  
18 investor who owns the stocks of both Target and Walmart does not care which of those  
19 firms wins the competitive battle between them, although it matters greatly to the managers  
20 of those companies, as it should. In contrast when we enter an economic recession, the value  
21 of all companies, including both Target and Walmart, declines. Diversification provides no  
22 safe haven, and in that case investors need compensation for exposure to that risk. The costs  
23 of equity for Target and Walmart therefore depend on their sensitivity to recessions, not on  
24 the competition between the two firms. That competition could greatly affect the value of

---

<sup>31</sup> Id, p. 58.

1 the individual stocks, but it is unlikely to have much of an effect on the value of a well-  
2 diversified portfolio. Costs of equity depend on portfolio value, not on changes in the value  
3 of the individual stocks.

4 **Q. And this is consistent with the academic finance literature?**

5 A. Yes. Brealey, Myers, and Allen in *Principles of Corporate Finance* state that the biggest  
6 risks firms face, the ones that drive their stock prices the most, typically do not affect the  
7 companies' costs of equity. They discuss the possibility that an oil company will  
8 increasingly drill dry holes or that a pharmaceutical manufacturers blockbuster drug might  
9 not get approved by the FDA. Note that these are the only products these firms sell, but  
10 these risks will not affect their costs of equity. To say this is poorly understood outside of  
11 corporate finance is an understatement.

12 The authors note that corporate executives typically increase their costs of equity for  
13 such firm-specific risks by making ex post adjustments to cost of equity estimates, which  
14 they call fudge factors. This is not only incorrect; it violates the core principle of modern  
15 corporate finance. Those company-specific risks affect the cash flows that the companies are  
16 expected to earn (which form the numerator of the stock valuation equation), not their costs  
17 of equity (which form the denominator).

18 Managers often add fudge factors to discount rates to offset worries such as  
19 these. This sort of adjustment makes us nervous. First, the bad outcomes we  
20 cited appeared to reflect unique diversifiable risks that would not affect the  
21 expected rate of return demanded by investors. Second the need for a  
22 discount rate adjustment usually arises because managers fail to give bad  
23 outcomes their due weight in cash flow forecasts. The managers then try to  
24 offset that mistake by adding a fudge factor to the discount rate.<sup>32</sup>  
25

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<sup>32</sup> Richard, Myers, Allen, *supra*, p. 223.

1 Finance practitioners provide the same advice. Regarding accounting for firm-specific risk  
2 factors, the McKinsey consultants recommend: “Create better forecasts, not *ad hoc* risk  
3 premiums.”<sup>33</sup>

4 **Q. How does this relate to this proceeding?**

5 A. If the Commission were to find cost of equity estimates in the 6% to 7% range to be too low  
6 because it felt that such returns did not reflect all the risks Applicant faced today, then they  
7 would be adding those fudge factors to the figures, thereby overstating the cost of equity.  
8 The cost of equity is not a catch-all for all risks the firm faces. It reflects only a company's  
9 exposure to macroeconomic risks because those are the risk impacts that the institutional  
10 investors who determine stock prices cannot diversify away. Those are the only risks that  
11 matter to them in terms of developing required returns.

12 As a case in point, the threat of distributed energy resources in the utility sector does  
13 not negatively affect Target, the New York Times, Procter & Gamble, and Visa. Then it  
14 does not affect the cost of equity for WEC Energy Group either, although its stock price  
15 may be reduced substantially by such threats. Again, the cost of equity does not depend on  
16 whether a risk factor affects a company's stock price, but whether it affects the value of the  
17 portfolio in which that stock is held. This concept has been the backbone of modern  
18 corporate finance since the 1950s and has been borne out repeatedly by empirical studies.<sup>34</sup>

19 **Q. So investor-focused firms should not maximize profits, most risks don't affect a**  
20 **company's cost of equity, and as you showed at the outset the level of a firm's ROE**  
21 **does not affect its ability to raise capital. How did we deviate so far from these finance**  
22 **principles?**

---

<sup>33</sup> Koller, Goedhart, and Wessels, *supra*, p. 59.

<sup>34</sup> Harry Markowitz, 1952, Portfolio selection, *Journal of Finance*, 7(1), 77-91.



1 A. Michael Mauboussin, head of consilience research<sup>35</sup> at Morgan Stanley, who formerly  
2 served as chief equity strategist at Credit Suisse and Legg Mason and as chairman of the  
3 board of the Santa Fe Institute,<sup>36</sup> has an answer. Rather than probing deeply in investigating  
4 these issues, we rely on intuition and default thinking, which he describes in his book *Think*  
5 *Twice: Harnessing the Power of Counterintuition*:

6 Smart people make poor decisions because they have the same factory  
7 settings on their mental software as the rest of us, and that software isn't  
8 designed to cope with many of today's problems. So our minds frequently  
9 want to see the world one way—the default—while a better way to see the  
10 world takes some mental effort... These beliefs prevent clear thinking. To  
11 make good decisions, you frequently must think twice—and that's something  
12 our minds would rather not do.<sup>37</sup>

13  
14 If we are to get back on track in this regard we need to ignore our instincts and think hard  
15 about these critically important finance issues. That is, when setting the ROE we need to  
16 think twice.

## 17 VIII. REGULATORY ROE POLICIES

18 **Q. Returning to the theme of utility ROEs exceeding costs of equity, have others stressed**  
19 **this point?**

20 A. Yes. The problem, as pointed out by Alfred Kahn, who not only was an academic but who  
21 also chaired the New York Public Service Commission, and many other researchers, is that  
22 regulators implicitly treat all utilities as above-average performers in this regard, authorizing

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<sup>35</sup> Consilience is defined as agreement between the approaches to a topic of different academic subjects, especially science and the humanities.

<sup>36</sup> From its website, "Founded in 1984, the Santa Fe Institute was the first research institute dedicated to the study of complex adaptive systems."

<sup>37</sup> Michael Mauboussin, 2013, *Think Twice: Harnessing the Power of Counterintuition*, Boston, MA: Harvard Business Review Press, p. xv.

ROEs that exceed rational cost of equity estimates. Kahn extends this discussion in *The Economics of Regulation*:

Merely permitting all regulated companies as a matter of course to earn rates of return in excess of the cost of capital does not supply the answer; there has to be some means of seeing to it that those supernormal returns are *earned*, some means, for example, of identifying the companies that have been unusually enterprising or efficient and offering the higher profits to them while denying them to others.<sup>38</sup> (Emphasis in original.)

Returns above the cost of equity are not about compensating investors for risk—the cost of equity (investors’ required return) completely addresses the risks investors face. The magnitude of the return on equity premium above the cost of equity depends on how well Applicant treat its customers.

**Q. How can we tell that utility ROEs have exceeded costs of equity (investor required returns)?**

A. As Professor Damodaran explains, the relationship between a utility’s stock price and its book value tells us about the relationship between its ROE and its cost of equity.

The price-book value ratio of a stable firm is determined by the differential between the return on equity and its cost of equity. If the return on equity exceeds the cost of equity, the price will exceed the book value of equity; If the return on equity is lower than the cost of equity, the price will be lower than the book value of equity.<sup>39</sup>

The only time there is parity between the ROE and the cost of equity is when there is parity between the stock price and the book value. The power of this method is that both the stock price and the book value are directly observable.

**Q. Have any regulators used the differences between stock prices and book values to emphasize the distinction between ROEs and costs of equity?**

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<sup>38</sup> Alfred Kahn, *supra*, p. 54.

<sup>39</sup> Aswath Damodaran, 2012, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, Hoboken NJ: John Wiley & Sons, p. 515.

1 A. Yes. As the Federal Energy Regulatory Commission (FERC) explains, unless stocks happen  
2 to be priced exactly at book value, ROEs will not be proxies for the cost of equity because  
3 that latter figure represents returns investors could expect to capture only when they buy  
4 marketable securities.

5 Investors cannot invest in an enterprise at book value and must instead pay  
6 the prevailing market price for an enterprise's equity...the expected return  
7 on a utility's book value [ROE] does not reflect 'returns on investments in  
8 other enterprises' because book value does not reflect the value of any  
9 investment that is available to an investor in the market, outside of the  
10 unlikely situation in which market value and book value are exactly equal.<sup>40</sup>

11  
12 **Q. What is the FERC getting at here?**

13 A. This is a critically important point. The only time ROEs reflect investor return requirements  
14 is when utility stock prices are equal to book value, a situation that has not occurred in the  
15 utility industry for decades. This is one of the reasons researchers suggest that in recent  
16 decades utility ROEs have exceeded investor return requirements. We need look no further  
17 than utility stock prices relative to their book values, both of which are directly observable.  
18 The last time utility stocks as a whole traded at or below book value was during the Reagan  
19 administration. Therefore any reference to ROEs as representing returns investors require is  
20 invalid.

21 This means models that develop ROE estimates based on prior ROE decisions, such  
22 as the risk premium model prevalent in regulation, do not tell us anything about the returns  
23 investors require. They simply tell us what the ROEs have been, which is a circular piece of  
24 evidence. If we're trying to understand investor return requirements, and we want to test the  
25 reasonableness of prior ROE decisions, we need market data, not book returns.

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<sup>40</sup> Federal Energy Regulatory Commission, March 17, 2022, Decision in Docket No. ER16-2320-002, pp. 112-113.

1 **Q. What other evidence do you offer that regulators have systematically set ROEs in**  
2 **excess of investors' required returns?**

3 A. In addition to decades of evidence showing utility stock prices in excess of book value,  
4 numerous studies have reported that result. In discussing those studies, let me lead off with  
5 one particularly comprehensive review conducted by David Rode and Paul Fischbeck of  
6 Carnegie Mellon University. After studying four decades of authorized return decisions,  
7 they concluded:

8 Based on a database of U.S. electric utility rate cases spanning nearly four  
9 decades, the returns on equity [ROEs] authorized by regulators have  
10 exhibited a large and growing premium over the riskless rate of return. This  
11 growing premium does not appear to be explained by traditional asset-pricing  
12 models, often in direct contrast to regulators' stated intent. We suggest  
13 possible alternative explanations drawn from finance, public policy, public  
14 choice, and the behavioral economics literature. However, absent some  
15 normative justification for this premium, it would appear that regulators are  
16 authorizing excessive returns on equity to utility investors and that these  
17 excess returns translate into tangible profits for utility firms.<sup>41</sup>

18  
19 The key points to note in the preceding quote is that the researchers find that regulators are  
20 not only authorizing excessive returns but also denying that the returns are excessive. When  
21 the researchers apply finance principles, they find that there is a fundamental disconnect  
22 between what regulators are saying and what they're actually doing.

23 In the end, we may observe simply that what regulators should do, what  
24 regulators say they're doing, and what regulators actually do may be three  
25 very different things.<sup>42</sup> (Emphasis in original.)

26  
27 **Q. Do you have an estimate of how much these excess returns cost utility consumers every**  
28 **year?**

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<sup>41</sup> David C. Rode and Paul S. Fischbeck, 2019, Regulated equity returns: A puzzle, *Energy Policy*, 133, p. 1.

<sup>42</sup> *Id.*, p. 16.

1 A. Yes. University of California-Berkeley researchers found similar systemic deviations  
2 between authorized ROEs and the returns utility investors required. They also estimated the  
3 impact on consumers.

4 We estimate that the current average return on equity is 0.5–4.0 percentage  
5 points higher than historical relationships would suggest, and consumers pay  
6 an average of \$2–8 billion per year more than they would otherwise.<sup>43</sup>  
7

8 This is far from an esoteric or trivial matter, and it requires close attention by the Commission.

9 If we are going to move to performance-based regulation in earnest, we must first fix this  
10 chronic problem.

11 **Q. Have other researchers reached a similar conclusion?**

12 A. Yes, MIT finance professor Stewart Myers and Lynda Borucki, writing in *Financial*  
13 *Markets, Institutions and Investments*, reported their conclusion based on a review of a  
14 regulator's use of finance principles and models to set ROEs:

15 There is no way to square these numbers with the standard view of the  
16 objectives of rate of return regulation. Regulators are supposed to set  
17 allowed returns equal to the cost of capital, perhaps with a regulatory lag to  
18 give incentives for cost reduction, better management, etc. But this does not  
19 allow an expectation of long-run profitability exceeding the cost of equity or  
20 market-to-book ratios substantially above one for virtually all utilities.<sup>44</sup>  
21 Emphasis added.  
22

23 **Q. Any others?**

24 A. Yes. Alfred Kahn writing in *The Economics of Regulation* raised similar concerns, this time  
25 about internal inconsistencies in regulatory financial policies:

26 It [standard regulatory policy] assumes at one and the same time that the  
27 Commission allows returns on equity ( $r$ ) in excess of and equal to the cost of  
28 capital ( $k$ ).<sup>45</sup> (Emphasis added.)

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<sup>43</sup> Karl W. Dunkle Werner, 2021, Essays on Energy and Environmental Economics, Doctoral Dissertation, University of California-Berkeley. <https://escholarship.org/uc/item/8qr72677>.

<sup>44</sup> Stewart C. Myers and Lynda S. Borucki, 1994, Discounted cash flow estimates of the cost of equity capital, *Financial Markets, Institutions and Investments*.

<sup>45</sup> Kahn, *supra*, p. 50.

1  
2 **Q. Why does Kahn state that regulators assume that the ROE is both equal to and at the**  
3 **same time greater than the cost of equity?**

4 A. Most regulatory decisions state that the ROE is being set at the cost of equity. If that is true,  
5 however, then utilities cannot create value for their investors by investing capital. To create  
6 such value the ROE must exceed the cost of equity. This is the problem utilities faced in the  
7 1969 to 1987 period over which in many years the ROEs earned were lower than their costs  
8 of equity (see Consumers Power case) so investing capital did not push their stock prices  
9 higher.

10 But in the past three decades or so everyone in the industry believes that investing  
11 capital creates value for investors, and that appears to be the case. That means that ROEs  
12 exceed the cost of equity. But regulators typically reject that assertion.

13 So which is it? ROEs are set equal to the cost of equity and therefore there is no  
14 incentive for utilities to invest capital, or ROEs are set in excess of the cost of equity  
15 creating an incentive to invest. We must pick one of these two possibilities. It is clear that it  
16 is the latter which then leads us to the next topic. Estimating the cost of equity. Given  
17 everything I've said so far, to be rational and consistent with finance principles, cost of  
18 equity estimates must be hundreds of basis points lower than recently authorized ROEs.  
19 They are.

## 20 **IX. COST OF EQUITY ESTIMATES**

21 **Q. Do you estimate costs of equity for Applicant?**

22 A. Yes.

23 **Q. How do you describe your approach?**

1 A. I prefer to get a general sense of the location of the cost of equity rather than a precise  
2 estimate. Precision should not be confused with accuracy. I concur with Justice Stephen  
3 Breyer who in his book *Regulation and Its Reform* states:

4 To spend hours of hearing time considering elaborate rate-of-return models  
5 is of doubtful value, and suggestions of a proper rate, carried out to several  
6 decimal places, gives an air of precision that must be false.<sup>46</sup>  
7

8 It is more precise, but not more accurate, to say that the cost of equity lies between 6.32%  
9 and 7.51% than it is to say that the cost of equity is somewhere in the neighborhood of 6%  
10 to 7%.

11 **Q. Before you proceed to your estimates, do finance experts find utility ROEs exceeding**  
12 **costs of equity?**

13 A. Yes. Those who are in the business of valuing utility stocks treat the ROE and the cost of  
14 equity as distinct returns because that is the only way we can explain utility stock prices  
15 trading well above book value. Consider investment advisory service Morningstar's analysis  
16 of WEC Energy Group's stock.

17 In Wisconsin, the company enjoys rates based on two-year forward test years  
18 and an earnings-sharing mechanism over its allowed return on equity. Its  
19 average allowed ROE tops 10% at the company's subsidiaries in the state  
20 and is consistently above peers'...In our discounted cash flow valuation, we  
21 use a 6.1% cost of capital based on a 7.5% cost of equity.<sup>47</sup> (Emphasis  
22 added.)  
23

24 The distinction between ROE and cost of equity could not be clearer.

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<sup>46</sup> Stephen Breyer, 1982, *Regulation and Its Reform*, Boston: Cambridge, MA: Harvard University Press, p. 47.

<sup>47</sup> Andrew Bischof, May 4, 2022, *WEC Energy Group Stock Analysis*, Chicago, IL: Morningstar.

Note that Morningstar has substantial gravitas in the financial community. The Financial Industry Regulatory Authority (FINRA), the industry's self-regulating agency, selected Morningstar to be the organization's official investment data source.<sup>48</sup>

**Q. Do other financial experts suggest that utility costs of equity are well below Applicant's ROE?**

A. Yes. To launch this analysis, I gathered reported cost of equity estimates for the broad market from McKinsey & Co., the largest management consulting firm in the world, Kroll (formerly Duff & Phelps), the largest investment valuation firm in the world, and BlackRock, the largest asset manager in the world. I also have gathered information from the Wells Fargo Investment Institute and Professor Damodaran. Morningstar also reports a cost of equity for the broad market in the report on WEC Energy Group. See the table below. Since utility stocks contribute less volatility to investment portfolios than does the typical S&P 500 company, these cost of equity estimates for stocks in general overstate the cost of equity for utilities.

**Broad Market Cost of Equity Estimates From Outside Experts**

Entity	S&P 500 Cost of Equity Estimate
McKinsey & Co <sup>49</sup>	9.2%
Kroll <sup>50</sup>	9.0%
Morningstar <sup>51</sup>	9.0%

<sup>48</sup> George Smaragdis and Alexa Auerbach. July 1, 2013. FINRA Selects Morningstar for Re-Launch of Market Data Center.

<sup>49</sup> The McKinsey model is based on its study of forward-looking cost of equity estimates. The model uses an estimate of the long-run inflation rate as the base and adds 7.0 percentage points to obtain the S&P 500 cost of equity estimate. See Marc Goedhart, Tim Koller, and Zane D. Williams, October 1, 2002, The real cost of equity, *McKinsey on Finance*, <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-real-cost-of-equity>. The analysis was completed on July 15, 2022. At that time the yield on the 30-year U.S. conventional Treasury bond was 3.10% and the yield on the inflation-adjusted 30-year Treasury bond was 0.86%, yielding a net difference of 2.2%, which is an estimate of the market's long-run inflation expectation. The cost of equity for the S&P 500 is then 2.2% + 7.0% = 9.2%.

<sup>50</sup> Kroll reports a normalized yield on the 20-years U.S. Treasury and an equity risk premium relative to that yield. <https://www.kroll.com/en/insights/publications/cost-of-capital/recommended-us-equity-risk-premium-and-corresponding-risk-free-rates>.

<sup>51</sup> Bischof, *supra*.



Damodaran (NYU) <sup>52</sup>	8.6%
Wells Fargo <sup>53</sup>	8.3%
BlackRock <sup>54</sup>	7.5%

**Q. Did you prepare your own estimate of the S&P 500 cost of equity?**

A. Yes. I relied on a cash yield based discounted cash flow (DCF) model with long-run sustainable growth equal to nominal GDP, one set forth in the literature.<sup>55</sup> The cash yield considers all cash flows to investors. That includes dividend payments, which go to all of a firm's investors, and stock repurchases, which go to those who choose to sell their stock back to the company (the latter is typically not a factor when using this model to estimate costs of equity for utilities because they rarely repurchase their stocks). As the level of stock repurchases for the typical non-utility company grew to match and then eventually exceeded dividend payments, ignoring repurchases tended to significantly understate the cash flows to investors, in turn resulting in underestimates of the cost of equity. The cash yield approach is now commonly applied in estimating that investor-required return for the broad market.<sup>56</sup>

$$\text{cost of equity (market)} = \frac{\text{dividends}}{\text{stock price}} + \frac{\text{stock repurchases}}{\text{stock price}} + \text{real GDP growth} + \text{inflation rate}$$

<sup>52</sup> Damodaran estimates the equity risk premium relative to the 10-year U.S. Treasury bond based on five different approaches for July 2022: (1) trailing 12-month adjusted payout, ERP = 5.69%; (2) trailing 12-month cash yield, ERP = 6.01%, (3) average cash flow yield last 10 years, ERP = 5.90%; (4) net cash yield, ERP = 5.66%; and (5) normalized earnings and payout, ERP = 4.27%. The median ERP is then 5.69%. The yield on the 10-year Treasury note on July 15, 2022 was 2.93%. The cost of equity for the S&P 500 is then: 2.93% + 5.69% = 8.62%. Source: <https://pages.stern.nyu.edu/~adamodar/>.

<sup>53</sup> Wells Fargo reports expected market returns for the next 10 to 15 years. It builds its expected long-term return on equity using the inflation rate, a cash discount, the equity risk premium, the dividend yield, and qualitative adjustments. Wells Fargo Investment Institute, 2022, *2022 Capital Market Assumptions: The Building Block Approach*.

<sup>54</sup> BlackRock reports its estimate directly. It labels the estimate "U.S. equities." This is the 30-year projection. [https://www.blackrock.com/institutions/en-axj/insights/capital-market-assumptions\\_AXJ](https://www.blackrock.com/institutions/en-axj/insights/capital-market-assumptions_AXJ). Their method is based on Yan Li, David T. Ng, Bhaskaran Swaminathan, 2013, Predicting market returns using aggregate implied cost of capital, *Journal of Financial Economics*, 110, 419-436.

<sup>55</sup> John L. Maginn, Donald L. Tuttle, Jerald E. Pinto, Dennis W. Mcleavy, 2007, *Managing Investment Portfolios: A Dynamic Approach*, Hoboken, NJ: John Wiley & Sons.

<sup>56</sup> Aswath Damodaran, 2022, Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2022 Edition, <https://pages.stern.nyu.edu/~adamodar/pdfiles/papers/ERP2022Formatted.pdf>

All financial data I use is as of July 15, 2022.<sup>57</sup> The current dividend yield on the S&P 500 is 1.7%. Damodaran reports that in the 21<sup>st</sup> century stock repurchases have been 1.4 times as large as dividends.<sup>58</sup> Assuming that relationship holds in the future, the repurchase yield is then  $1.7\% \times 1.4 = 2.4\%$ . The inflation rate is that derived from the difference between the 30-year conventional Treasury bond yield (3.1%) and the yield on the 30-year inflation-adjusted Treasury bond (0.9%), which produces an inflation estimate of 2.2%. Finally, the Organization for Economic Cooperation and Development (OECD) predicts long-run real GDP growth of 1.6% for the U.S. out to the year 2060.<sup>59</sup> I round this to 2%. The rate of GDP growth matches almost exactly the rate of growth in S&P 500 earnings per share over the long run, which is the growth component of this discounted cash flow model. We now have all the components:

$$\text{cost of equity (market)} = 1.7\% + 2.4\% + 2.0\% + 2.2\% = 8.3\%$$

My estimate is in the neighborhood of those reported by the other organizations.

**Broad Market Cost of Equity Estimates From Outside Experts  
and the Citizens Utility Board**

Entity	S&P 500 Cost of Equity Estimate
McKinsey & Co	9.2%
Kroll	9.0%
Morningstar	9.0%
Damodaran (NYU)	8.6%
CUB (Kihm)	8.3%
Wells Fargo	8.3%
BlackRock	7.5%
<b>MEDIAN</b>	<b>8.6%</b>

<sup>57</sup> It is common in regulation to average historical data to estimate model inputs. This too is bad practice. While it smooths input parameters, it actually makes them less accurate. All of the information in the prior prices is impounded in the current price, so to average historical prices double counts. See Steven G. Kihm, February 1, 1996, The superiority of spot yields in estimating cost of capital, *Fortnightly Magazine*.

<sup>58</sup> Damodaran online <https://pages.stern.nyu.edu/~adamodar/>

<sup>59</sup> [https://www.oecd-ilibrary.org/economics/data/oecd-economic-outlook-statistics-and-projections/long-term-baseline-projections-no-109-edition-2021\\_cbdb49e6-en](https://www.oecd-ilibrary.org/economics/data/oecd-economic-outlook-statistics-and-projections/long-term-baseline-projections-no-109-edition-2021_cbdb49e6-en)

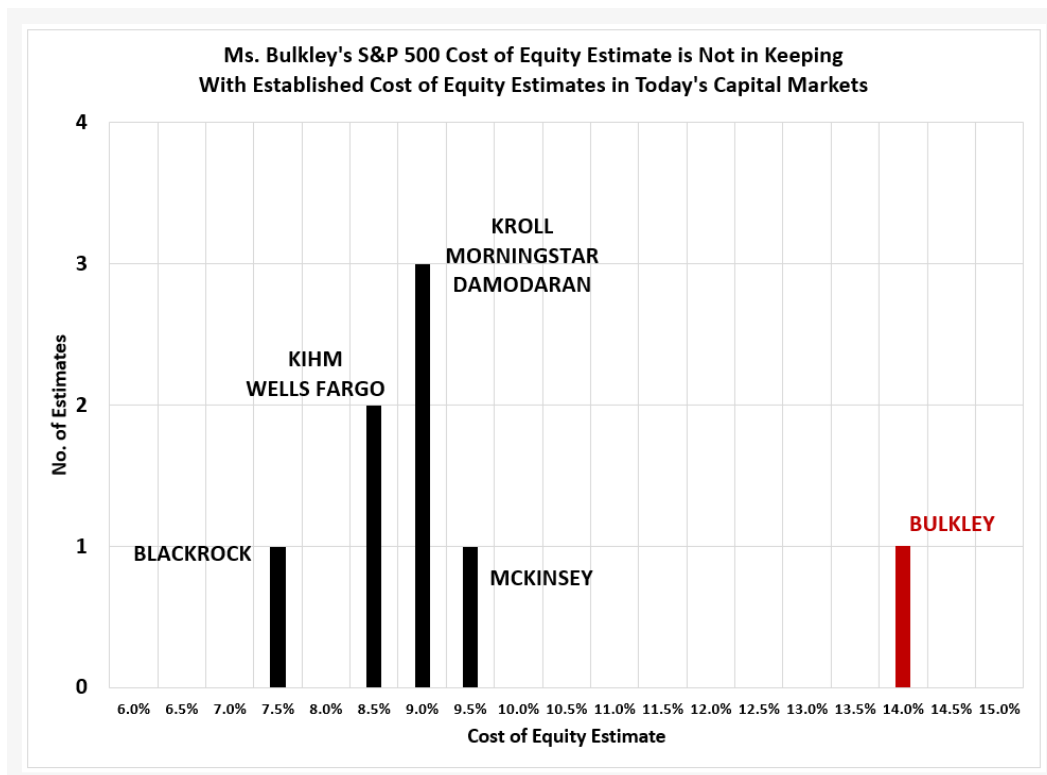
1 **Q. Did Ms. Bulkley prepare an estimate of the cost of equity for the S&P 500?**

2 **A.** Yes. I have added her estimate to the table but do not consider it to be a reasonable estimate  
3 due to its extreme nature.<sup>60</sup>

4 **Broad Market Cost of Equity Estimates From Outside Experts,**  
5 **the Citizens Utility Board, and Applicant**  
6

Entity	S&P 500 Cost of Equity Estimate
Applicant (Bulkley)	14.1%
McKinsey & Co	9.2%
Kroll	9.0%
Morningstar	9.0%
Damodaran (NYU)	8.6%
CUB (Kihm)	8.3%
Wells Fargo	8.3%
BlackRock	7.5%

7  
8 The gap between Ms. Bulkley's estimate and those of the other experts is even more  
9 obvious when presented in visual form. See the figure below.



<sup>60</sup> If I did include her estimate, the median S&P 500 cost of equity estimate would only be slightly higher at 8.8%.

1   **Q.     Do you have any comments on Ms. Bulkley’s estimate?**

2   A.     Yes. Clearly Ms. Bulkley is looking at a different world than the capital markets that  
3         McKinsey and Co., Kroll, Morningstar, Damodaran, Wells Fargo, BlackRock, and I see.  
4         The discrepancies within the group that I’m in are about reasonable people disagreeing on  
5         details. But the gap between the estimates of the group I am in and Ms. Bulkley’s estimate is  
6         far too wide to include her in that group. Her estimate, over nine standard deviations higher  
7         than the mean estimate of my group,<sup>61</sup> is an outlier. I have applied modern corporate  
8         finance techniques to estimate the cost of equity for the S&P 500. It is not surprising then  
9         that well-established market participants, whose only incentive in this context is to be  
10        accurate, arrive at similar estimates.

11   **Q.     Why is Ms. Bulkley’s estimate so much higher than those of the other experts?**

12   A.     We can attribute this to essentially one factor: she uses sell-side stock analyst growth rates  
13         as long-run projections. Bulkley Direct at pp. 37 and 42. Unlike the equity strategists, who  
14         strive to be accurate when estimating expected stock returns, sell-side analysts have strong  
15         incentives to be overly optimistic. Finance principles argue strongly against using analysts’  
16         forecasts as long-run projections in any financial analysis. First we return to Harvard finance  
17         professor Mihir Desai in *How Finance Works*:

18                 The incentives for the people at the center of the capital markets are  
19                 considerably more complicated than you might hope. It would be wonderful  
20                 if the only incentive for analysts was to work hard and do their job.  
21                 Unfortunately, that’s not the case—they tend to be positively biased and  
22                 some ‘herd’ by copying other analysts while others say extreme things.<sup>62</sup>  
23

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<sup>61</sup> The mean and standard deviation of the estimates are 8.56% and 0.59%, respectively. Ms. Bulkley’s estimate is 5.54 percentage points above that mean estimate:  $5.54\%/0.59\% = 9.47$ .

<sup>62</sup> Desai, *supra*, p. 100.

1 None of those descriptors should give us any confidence in the analyst growth forecasts. If  
2 we needed a forecast for something that was critically important in our personal lives, would  
3 we rely on experts who are overly optimistic and who tend to say the same thing rather than  
4 providing independent information (except for the occasional iconoclast who says  
5 something extremely different from anyone else)? Of course not. Yet in situations involving  
6 hundreds of millions of dollars (many billions across the industry) of utility customers'  
7 money, regulators do that all the time when they rely on cost of equity forecasts developed  
8 using stock analyst growth rates as long-term projections. Even stock analysts themselves  
9 don't actually believe that these forecasts can be achieved in the long run.

10 **Q. Why do you say that?**

11 A. Leonard Hyman, our former utility equity analyst at Merrill Lynch, wrote the following in  
12 his *Energy Law Journal* article:

13 Simply put, do not build into expectations stock prices that grow faster than  
14 the economy; do not bank on an additional revaluation of earnings; put a  
15 lower valuation on reinvested earnings because corporations reinvest badly;  
16 and do not believe Wall Street's optimistic estimates.<sup>63</sup> (Emphasis added.)  
17

18 In some ways the criticism of the analysts is not quite fair because they do not suggest that  
19 these are truly long-term forecasts but rather ones that apply over the next three to five  
20 years. So there actually are no truly long-term forecasts coming from Wall Street, and the  
21 ones that are labeled as such are far too high to apply to the indefinite future, which is what  
22 is required when we estimate the cost of equity.

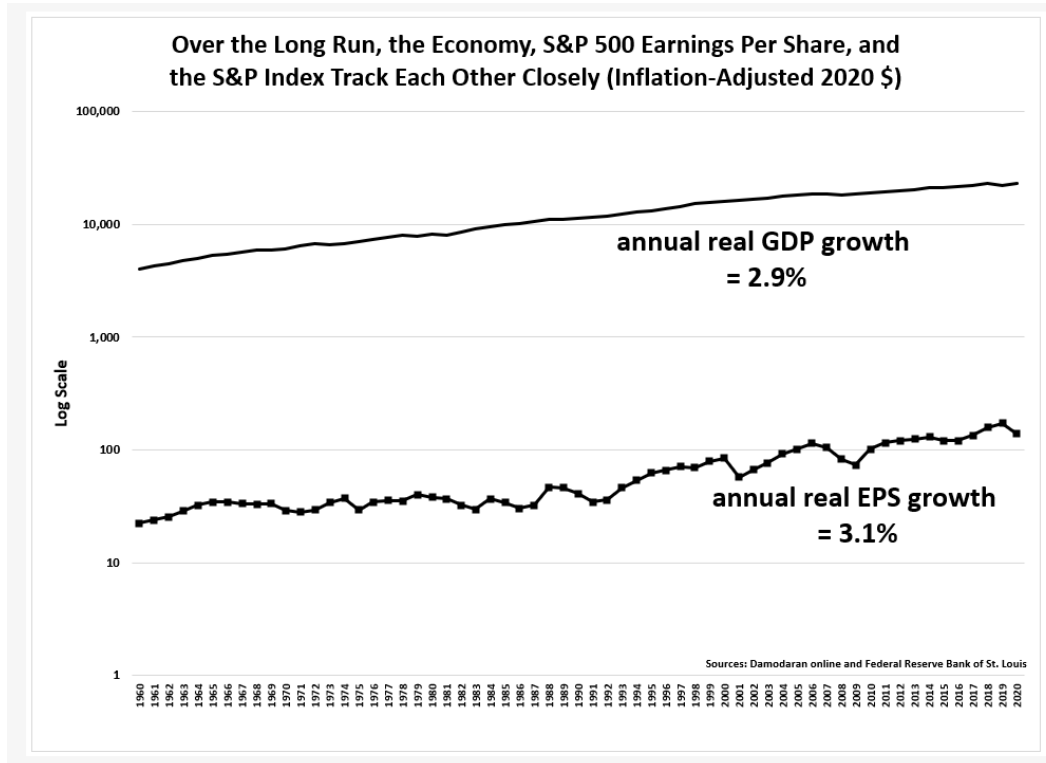
23 Either Ms. Bulkley is right about this or the rest of us are right. We can't both be  
24 coming up with reasonable estimates. I stand by my estimate because it is developed using  
25 finance principles and it matches the data.

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<sup>63</sup> Leonard Hyman, 2003, Investing in the Plain Vanilla Utility, *Energy Law Journal*, 24(1), p. 4.

1 **Q. Why do you say your estimate matches the data?**

2 A. The key issue is whether the long-run growth rate in earnings for the S&P 500 matches the  
3 GDP growth rate (spoiler: it does) or is three times faster than the GDP growth rate, which is  
4 what the stock analysts' 12% growth rate, which Ms. Bulkley uses, implies. Again, the  
5 following image, like the table and figure above, speaks for itself. This is economic reality.



6  
7 **Q. Is there another reason why her estimate is so high?**

8 A. Yes. She is trying to use a cost of equity model to estimate a different return.

9 **Q. What return is she trying to estimate?**

10 The ROE. She even labels her models “DCF ROE Model” and “CAPM ROE Model.” See  
11 Bulkley Direct at p. 5. We can refer back to the Solomon article.

12 Unfortunately, two altogether distinct units are employed for measuring rate  
13 of return: (1) book rate units [ROE] and (2) discounted cash flow units [cost

of equity]. Rarely will the two produce the same result, and the use of one measure as a surrogate for the other may prove highly misleading.<sup>64</sup>

Following Solomon's lead we must ask what these financial models measure. The DCF model and the CAPM measure costs of equity, not ROEs. There are no ROE models in finance because ROE is an accounting variable, not a finance metric.

**Q. Do you have any other comments on this issue?**

A. Yes. Proper use of cost of equity models requires respecting natural limits to growth. As professor Damodaran says in *Applied Corporate Finance*, relying on stock analyst growth rates as the most important input in a financial analysis, that is as the long-term growth projection, “is not prudent.”<sup>65</sup> The reason independent researchers are so critical of regulation and its financial policies is that models using sell-side stock analyst growth rates as long-run projections are commonly accepted in regulation as being reasonable. There is no basis of support for that approach.

**Q. Do investors use those projections?**

A. They do not use the analysts’ growth rate estimates as reported, if they use them at all. When developing long-run growth projections, investors remove the predictable forecast errors from the analysts’ estimates before using them in valuation analyses. It is interesting to note that analysts’ forecast errors are so systematic and consistently biased that they are predictable.

We show that removing predictable errors from analyst forecasts leads to a much stronger association between implied cost of equity estimates obtained from adjusted forecasts and realized returns after controlling for cash flow news and discount rate news...Future research using implied cost of equity

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<sup>64</sup> Solomon, *supra*, p. 121.

<sup>65</sup> Aswath Damodaran, 2011, *Applied Corporate Finance*, Hoboken, NJ: John Wiley & Sons, p. 606.

1 should remove predictable errors from implied cost of capital estimates.<sup>66</sup>  
2 Emphasis added.  
3

4 The investors who dominate the trading in utility stocks are smart.<sup>67</sup> If they have had a  
5 single course in finance or have worked in finance for a month or more they know that sell-  
6 side stock analyst growth rates are highly unreliable and systematically biased to the high  
7 side. Even many non-finance professionals know that. Desai's book quoted above is used to  
8 teach finance to non-finance majors at Harvard.

9 **Q. Can you convert these S&P 500 cost of equity estimates to utility cost of equity**  
10 **estimates?**

11 A. Yes, I can do so using the capital asset pricing model (CAPM), which I used in the  
12 Consumers Power analysis.

13 
$$\text{Utility Cost of Equity} = \text{Treasury Yield} + \text{Beta}(\text{S\&P 500 Cost of Equity} - \text{Treasury Yield})$$

14 I used the current yield on the 10-year treasury note as the risk-free rate, and I applied a  
15 utility stock beta of 0.75, a choice I discuss in a moment. For the S&P 500 cost of equity  
16 figure, I use the median estimate of 8.6% based on the estimates developed by McKinsey  
17 and Co., Kroll, Morningstar, Damodaran, Wells Fargo, BlackRock, and me.

18 
$$\text{Utility Cost of Equity} = 2.9\% + 0.75(8.6\% - 2.9\%) = 7.2\%$$

19 This is quite close to the 7.5% utility cost of equity estimate reported by Morningstar. We  
20 now have additional evidence from reputable sources that Applicant's ROE is hundreds of  
21 basis points higher than the returns their investors require.

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<sup>66</sup> Partha Mohanram and Dan Gode, 2013, Removing predictable analyst forecast errors to improve implied cost of equity estimates, *Review of Accounting Studies*, 18, p. 443.

<sup>67</sup> We should assume that the investors who trade in volumes large enough to affect stock prices are diversified institutional investors. See Aswath Damodaran, 2011, *Applied Corporate Finance*, Hoboken, NJ: John Wiley & Sons.



1 **Q. Ms. Bulkley suggests that forecasts of future interest rates should be used when**  
2 **determining Applicant's ROE. Do you agree?**

3 A. In principle yes, but we disagree on what that means. Professional forecasts of interest rates  
4 are not useful in this regard.

5 **Q. Why do you say that professional forecasts of interest rates are not useful in predicting**  
6 **the future direction of those rates?**

7 A. The research shows unequivocally that professional interest rate forecasts are much less  
8 accurate than using the spot yield (current interest rate), referred to as the random walk  
9 model. Financial markets look forward, and they do the heavy lifting for all of us in  
10 forecasting the future—in other words they can see the future much more clearly than any of  
11 us will ever be able to. The optimal forecast of future long-term interest rates is embedded in  
12 the current rate. The market yield settles in at a point where there is a 50% chance that rates  
13 will increase and a 50% chance that they will decrease. To use something else will only  
14 make the forecast less accurate. The evidence overwhelmingly supports that assertion.

15 **Q. What evidence do you have suggesting that the experts are so inaccurate?**

16 A. Ex.-Kihm-CUB-1 is a study that my colleague Mikhaila Calice and I prepared for the  
17 Hawaii Public Utilities Commission in 2019 and recently updated. It contains extensive  
18 evidence as to why the professional forecasts should be avoided at all costs if accuracy is of  
19 concern. I will present some of the highlights directly in the testimony as well.

20 **Q. Please describe the evidence.**

21 A. The research on interest rate forecasting in the last two decades of the 20<sup>th</sup> century shows  
22 that the consensus professional interest rate forecast reported in the *Wall Street Journal*  
23 predicted the direction of interest rate changes correctly only one third of the time, meaning

1       that the professionals could not even beat a coin flip. Some researchers writing in the  
2       *Journal of Portfolio Management* suggested that the professionals' forecast contraindicate  
3       the direction that interest rates are headed,<sup>68</sup> meaning that if the professionals predict that  
4       they will rise there is a greater than 50% chance that they will fall.

5               And the professionals' forecasting accuracy has, if anything, gotten worse in the 21<sup>st</sup>  
6       century. Using data from the *Survey of Professional Forecasters*, from the year 2001 to  
7       2021 the consensus forecast of the professionals was too high every year, that is, 20 years in  
8       a row. It sounds like I am being facetious here, but I am not. One would have to be trying to  
9       be so inaccurate to make the same directional error 20 years in a row.

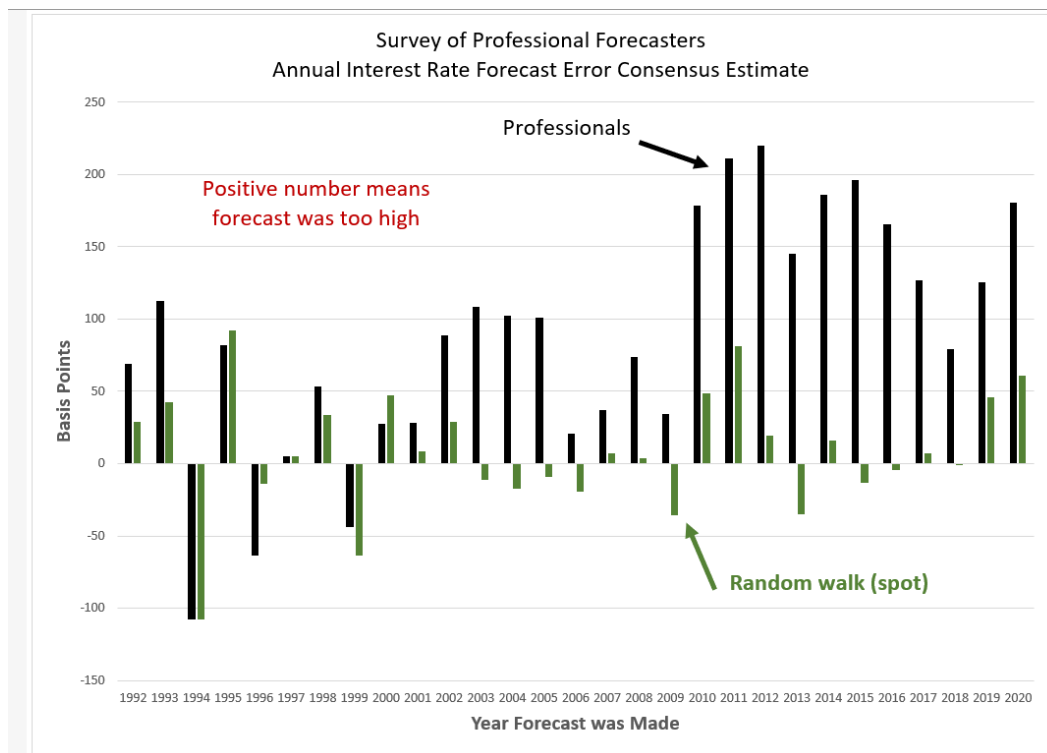
10              This is equivalent to flipping a coin and having it come up heads 20 times in a row.  
11       What is likely occurring is a cognitive bias referred to as escalation of commitment.<sup>69</sup> That  
12       is, rather than accepting that they are wrong and making an adjustment, the highly-paid,  
13       highly-trained experts essentially double down on their previous bets, in this case hoping  
14       that the market will finally see the world as they do. But as I've said several times, the  
15       market is smarter than the experts.

16              The following figure shows the forecast errors for the professionals over the past 28  
17       years.

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<sup>68</sup> Robert Brooks and J. Brian Gray, 2004, History of the forecasters, *Journal of Portfolio Management*, 3(1), 113-117.

<sup>69</sup> Yu-En Lin, Whei-May Fan, and Hsiang-Hsuan Chih, 2014, Throwing good money after bad? The impact of the escalation of commitment of mutual fund managers on fund performance, *Journal of Behavioral Finance*, 15(1), 1-15.



1

2 We see that for the professionals, the black bars, starting in the year 2000, all lie in positive

3 territory, which means the forecast was always too high. The impacts of repeated errors in

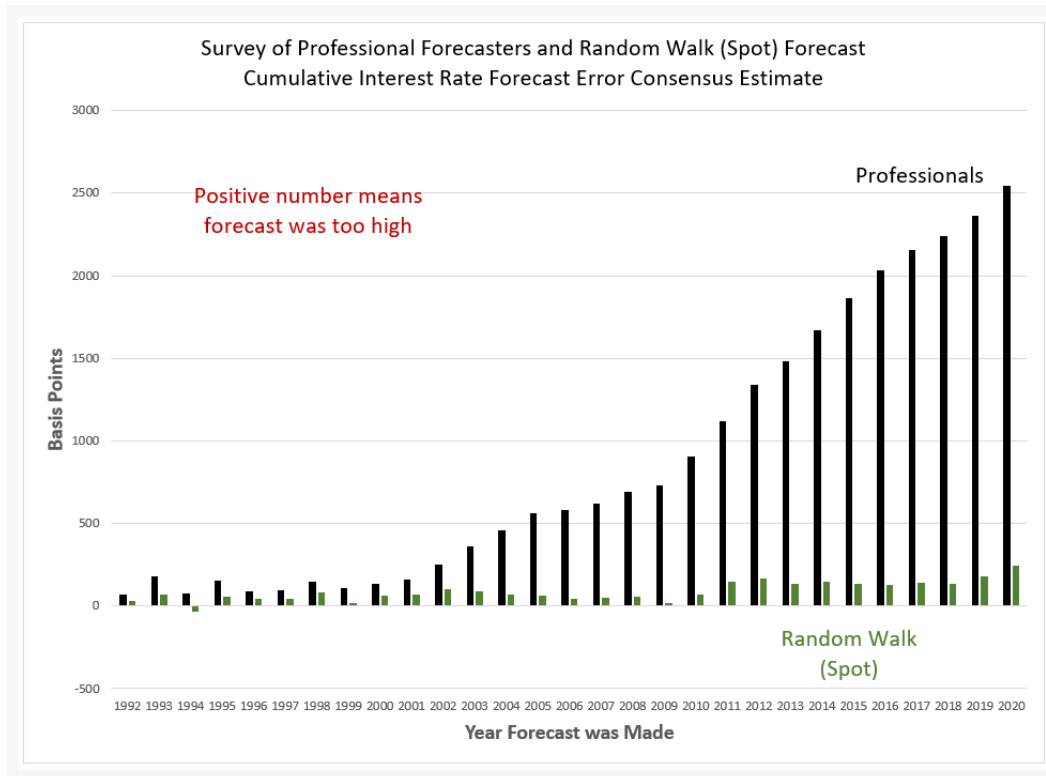
4 the same direction build cumulatively over time. In contrast, the green bars, which are the

5 errors of the random walk model, oscillate between being too high and being too low. Over

6 time the influence of those errors will tend to cancel out. The cumulative errors of the two

7 forecast types are shown in the second chart. The consequences of failing to trust the market

8 in this regard led to massive cumulative errors.



**Q. What are the implications of this evidence for this proceeding?**

A. Most people intuitively believe that professionals must be fairly accurate at forecasting interest rates. The only way we would know that they are not is to look at the literature or analyze the data. The professionals themselves are not going to tell us. In fact, they explicitly fail to accept responsibility for their errors. The evidence is that they have been worse than a coin flip in terms of forecast accuracy for four decades. If we were making a personal decision, would we ever rely on an expert that had been wrong for an entire career?

Nevertheless, in a classic example of motivated reasoning referred to as self-attribution bias (“if I’m accurate that’s because I’m smart, but if I’m inaccurate that’s not my fault”), we will hear phrases such as “nobody could have seen that coming” when the professionals are forced to confront their forecast accuracy (inaccuracy).<sup>70</sup> But that they

<sup>70</sup> Philip Tetlock and Dan Gardner, 2015, *Superforecasting: The Art and Science of Prediction*, New York: Crown Publishers.

1 couldn't see things coming is actually the point. The future is uncertain. Don't try to forecast  
2 it better than the market. Professionals have not accurately forecasted interest rates for  
3 decades. Why should we trust their forecasts now?

4 **Q. What makes for a good forecasting panel?**

5 A. The evidence on forecasting accuracy in general is that it is not in-depth knowledge of a  
6 field that is important, but rather it is the need to have a large number of people with diverse  
7 backgrounds.<sup>71</sup> The professional economist group fails on both fronts. The groups that  
8 report their forecasts typically range in number from 50 to 100 people, which is far too  
9 small—imagine how many more people are buying and selling bonds. And the professionals  
10 all have essentially the same training, another shortcoming. That is a prescription for  
11 inaccurate forecasts, and that's exactly what we get.

12 **Q. What are the implications of regulators' use of professional forecasts of interest rates**  
13 **when setting ROEs?**

14 A. The tendency of regulators to use forecasted interest rates has cost consumers dearly  
15 because in a cumulative sense the difference between the errors in the professionals'  
16 forecasts and the error using the market rate is over 2,000 basis points. Interest rate forecasts  
17 that are too high in turn lead to ROEs that are too high, and utility customers pay those  
18 ROEs.

19 **Q. Should the Commission then ignore the professional forecasts of interest rates?**

20 A. There are few absolutes in intellectual space, but there is one here, and it is one that anyone  
21 who studied corporate finance knows.<sup>72</sup> In fact, Mitchell and Pearce writing in the *Journal*

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<sup>71</sup> James Surowiecki, 2005, *The Wisdom of Crowds*, New York: Anchor Books.

<sup>72</sup> William Reichenstein, 2006, Rationality of Naive Forecasts of Long-Term Rates, *The Journal of Portfolio Management*.

1        *of Macroeconomics* state that economists are trained never to let anyone see their interest  
2        rate forecasts unless they want to be embarrassed by their inaccuracy: “Economists are  
3        warned in graduate school to avoid making forecasts that can readily be evaluated.”<sup>73</sup>

4                Researchers find that economists can forecast with some accuracy over short  
5        horizons variables other than long-term interest rates, for example, new housing starts and  
6        unemployment rates—items that are not traded in markets. In its self-evaluation of the  
7        accuracy of its *Survey of Professional Forecasters*, the Federal Reserve Bank of  
8        Philadelphia found economists can provide useful information about future levels for some  
9        economic variables, but then only for the next quarter, but they have no predictive ability  
10       over any period for long term interest rates, the item of interest here.

11                The survey’s projections easily outperform no-change forecasts for all  
12        variables except long-term interest rates.<sup>74</sup> (Emphasis added.)

13  
14        The no-change forecast is that which emerges from the random walk model.

15    **Q.     Are you a member of the Philadelphia Fed’s macroeconomic forecasting panel?**

16    A.     Yes.

17    **Q.     In that role, do you develop independent forecasts of long-term interest rates?**

18    A.     I do prepare a forecast, but it is based on the random walk model for that variable. I prepare  
19        my own independent forecasts of the other macroeconomic variables, those not directly  
20        traded in the financial markets. As Brealey, Myers, and Allen tell us in *Principles of*  
21        *Corporate Finance*, there is a simple overarching rule in that field: “Trust market prices.”<sup>75</sup> I

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<sup>73</sup> Karlyn Mitchell and Douglas K. Pearce, 2007, Professional forecasts of interest rates and exchange rates: Evidence from the *Wall Street Journal*’s panel of economists, *Journal of Macroeconomics*, 29, p. 840.

<sup>74</sup> Tom Stark, 2010, *Realistic Evaluation of Real-Time Forecasts in the Survey of Professional Forecasters*, Philadelphia: Federal Reserve Bank of Philadelphia, p. 2.

<sup>75</sup> Brealey, Myers, Allen, *supra*, p. 350.

1 follow that advice when forecasting interest rates. I assume the market knows more than I  
2 could ever know about that variable.

3 **Q. Why is the bond market so much more accurate than the professionals when**  
4 **forecasting interest rates?**

5 A. It is a \$46 trillion juggernaut with depth and breadth of knowledge that taken together will  
6 always contain more information than any individual or small group of individuals, no  
7 matter how well-trained, could be expected to have. Even though it may be intuitive to think  
8 that professionals can outperform the market, finance principles tell us they will not. The  
9 empirical evidence shows they have not. If we are going to be serious about applying  
10 finance principles we must reject these clearly inferior forecasts offered by investment  
11 professionals and instead use the powerful forecast embedded in the current market interest  
12 rate.

13 **Q. What about the 2000 basis point interest rate forecasting error that has accumulated**  
14 **in the investors' favor and to the detriment of consumers over the past two decades?**

15 A. The Commission could include a 100-basis point forecast-error downward adjustment to  
16 ROE for all utilities for each of the next 20 years. That would only bring consumers back to  
17 break even. Or the Commission could simply start leaning in the customers' favor when  
18 setting the just and reasonable ROE.

19 **Q. How do professional money managers consider market prices?**

20 A. Successful professional money managers respect those prices. They aren't naïve market  
21 participants unaware of the sort of macroeconomic information Ms. Bulkley reports in her  
22 testimony. That macroeconomic information, if it is relevant, is already impounded in the

1 bond prices that determine interest rates.<sup>76</sup> Successful managers focus on areas in which  
2 there is no market, such as private equity, or where the market is not well developed.  
3 Neither applies to interest rates.

4 Astute portfolio managers do not waste their time playing what Charles Ellis in his  
5 classic article in the *Financial Analysts Journal* called the Loser's Game (trying to outguess  
6 a party that has better information than you do).<sup>77</sup> His article is required reading for those  
7 who sit for the CFA exam.

8 There is little extra money to be made over and above what the market delivers by  
9 buying U.S. Treasury securities or investment grade corporate bonds. In such a hyper-  
10 efficient market, the probability that a money manager; the Commission; or anyone  
11 involved in rate proceedings before the Commission, including Ms. Bulkley and me, can  
12 consistently outguess the bond market is essentially zero. As David Swensen, the highly  
13 successful manager of the Yale Endowment Fund (he ranked in the top 1% of fund  
14 managers over the long run), stated:

15 High-quality fixed income securities, arguably the most efficiently priced  
16 asset in the world, trade in markets dominated by savvy financial institutions.  
17 Since nobody, possibly excepting the Federal Reserve [which has private  
18 information], knows where interest rates will be, few managers employ  
19 interest rate anticipation strategies.<sup>78</sup> Emphasis added.  
20

21 Successful money managers prefer to trade in less liquid, less researched markets, such as  
22 those associated with small stocks or private equity investments. In contrast, they take the  
23 bond market at its word; so should the Commission.

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<sup>76</sup> Mebane T. Faber and Eric W. Richardson, 2009, *The Ivy League Portfolio: How to Invest Like the Top Endowments and Avoid Bear Markets*, Hoboken, NJ: John Wiley & Sons.

<sup>77</sup> Charles D. Ellis, 1975, The loser's game, *Financial Analysts Journal*, 31(4), 19-26.

<sup>78</sup> David F. Swensen, 2009, *Pioneering Portfolio Management: An Unconventional Approach to Institutional Investment*, New York: Free Press, Chapter 7.



**Q. You have discussed the bond market. What about the stock market?**

A. Swensen also states that just as active trading in fixed income securities is a loser's game, so is investing in widely followed large capitalization equities, such as those included in Ms. Bulkley's proxy portfolio. Again, any information that she or anyone else has that is relevant is already impounded in utility stock prices.

**Q. And how have utility investors reacted to all of the information she sets forth in her testimony?**

A. Interestingly, during these turbulent times in the equity markets, utility stocks have risen, not declined, even though the general market has retreated. See the following figure, which contrasts the Utility Select Sector SDPR ETF (symbol XLU), a passive portfolio of about 40 of the largest investor-owned utilities, with the market in general.<sup>79</sup>



In contrast to the threatening-skies theme contained in Ms. Bulkley's testimony, the reality over the past year is that investors have moved out of the riskier S&P 500 stocks (down

<sup>79</sup> Source: Big Charts.

1 13%) and into the safer utility stocks (up 11%). That produces a 27% net gain for utility  
2 investors.<sup>80</sup> That, not the misdirected editorial comments of those watching the market, is  
3 what the Commission should take notice of. Utility stocks have the advantage of being an  
4 attenuator of changes in macroeconomic conditions. This creates a powerful diversification  
5 effect, which is quite valuable to portfolio managers. That means that investors will require  
6 relatively low returns (costs of equity) to hold utility stocks. That is what my cost of equity  
7 model analysis suggests is the case.

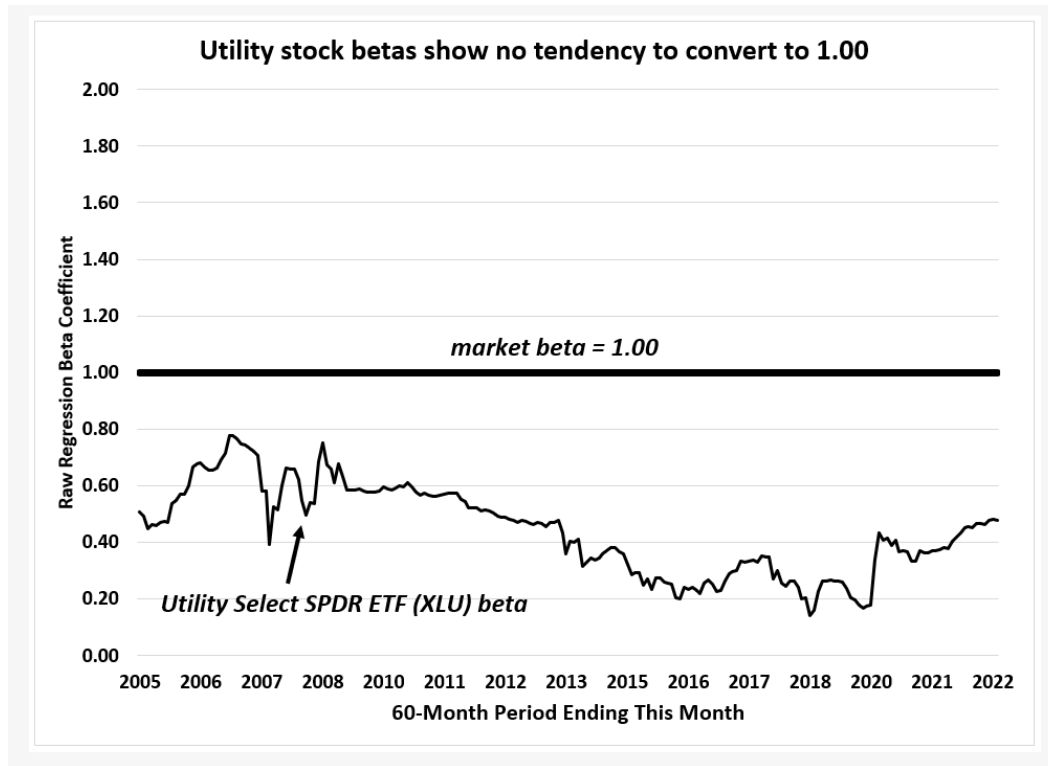
8 **Q. Do you have any comments on Ms. Bulkley's CAPM analysis?**

9 A. Yes. In her CAPM analysis Ms. Bulkley uses adjusted betas, reflecting the tendency of the  
10 betas of many stocks to converge to a value of 1.00 over the long run. But the term "many"  
11 is not a synonym for "all."

12 Professor Damodaran suggests that if the betas are going to converge to 1.00, that  
13 result will eventually show up in the analysis. He suspects that betas will converge to 1.00  
14 only for firms whose operations become more like those of typical companies over time.  
15 But that does not describe utilities. Damodaran is right. See the following figure, which  
16 shows the estimated beta coefficient for the XLU utility portfolio based on rolling 60-month  
17 regressions.

---

<sup>80</sup> The net gain is calculated as follows:  $(1 + \text{utility return}) / (1 + \text{S\&P 500 return}) - 1 = 1.11 / 0.87 - 1 = +0.27$



**Q. How much difference does this make if we use these raw betas instead of the adjusted betas?**

**A.** The formula for adjusting the beta is:

$$\text{adjusted beta} = 0.35 + 0.65 \times \text{raw beta}$$

The latest beta estimate for the XLU utility portfolio is 0.50, meaning the adjusted beta is:

$$\text{adjusted beta} = 0.35 + 0.65 \times 0.50 = 0.68$$

The difference is 0.18. If we apply the raw and adjusted betas to my equity risk premium of 570 basis points contained in my CAPM analysis shown earlier, moving from the raw to adjusted beta adds about 100 basis points to the cost of equity estimate. But the empirical evidence does not suggest using the adjusted betas.

Nevertheless, note that in my CAPM analysis presented earlier I gave the utilities a significant benefit of the doubt by using a beta (0.75) that exceeds even the adjusted beta

1 shown here. Therefore, I am giving utilities substantial benefit of the doubt in my CAPM  
2 analysis, rather than applying a strict application of the CAPM.

3 **Q. If you have so carefully analyzed the betas, why did you then use that higher beta**  
4 **(0.75)?**

5 A. The key is represented by my phrase “strict application of the CAPM.” The model is not  
6 without its shortcomings. The research suggests that it can understate the cost of equity for  
7 companies with low betas.

8 But rather than doing a deep dive into the mathematics of the model, let us first  
9 consider the assumptions behind it. Perold does a good job of that in his article in the  
10 *Journal of Economic Perspectives*:

11 [Assumptions:] First, investors are risk averse and evaluate their investment  
12 portfolios solely in terms of expected return and standard deviation of return  
13 measured over the same single holding period. Second, capital markets are  
14 perfect in several senses: all assets are infinitely divisible; there are no  
15 transaction costs, short selling restrictions or taxes; information is costless  
16 and available to everyone; and all investors can borrow and lend at the risk-  
17 free rate. Third, investors all have access to the same investment  
18 opportunities. Fourth, investors all make the same estimates of individual  
19 asset expected returns, standard deviations of return and the correlations  
20 among asset returns. These assumptions represent a highly simplified and  
21 idealized world, but are needed to obtain the CAPM in its basic form.<sup>81</sup>  
22 (Emphasis added.)  
23

24 If I felt comfortable ignoring these concerns, which I do not, I would apply the basic CAPM  
25 with the raw betas, producing a 5.8 % cost of equity estimate.

26 **Q. What other estimates could you obtain using the CAPM?**

27 A. I could employ the empirical CAPM, as Ms. Bulkley does. The equity risk premium (ERP)  
28 is the difference between the cost of equity for the S&P 500 and the Treasury yield, which  
29 per my estimates is 5.7% (8.6% - 2.9%). The formula is:

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<sup>81</sup> André F. Perold, 2004, The capital asset pricing model, *Journal of Economic Perspectives*, 18(3), pp. 15-16.

1                   Utility Cost of Equity = Treasury Yield + 0.25 × (ERP) + 0.75 × Beta × (ERP)

2           If I use the raw beta coefficient in the empirical CAPM, I obtain the following:

3                   Utility Cost of Equity = 2.9% + 0.25 × (5.7%) + 0.75 × 0.50 × (5.7%) = 6.5%

4   **Q.     Are there other estimates you could obtain using the CAPM?**

5   A.     I could employ this empirical CAPM with adjusted betas for completeness sake.

6                   Utility Cost of Equity = 2.9% + 0.25 × (5.7%) + 0.75 × 0.68 × (5.7%) = 7.2%

7           This, largely by coincidence, is equal to the estimate I obtain using the shortcut approach,  
8           which applies the standard CAPM with a beta of 0.75. This analysis suggests, however, that  
9           I probably am overstating the utility cost of equity here.

10 **Q.    Do you have any additional comments on the details of the CAPM analysis just**  
11 **discussed?**

12 A.     Yes. The CAPM review just discussed is merely fine tuning. The big issue in examining  
13 CAPM results is that discussed earlier—Ms. Bulkley’s S&P 500 cost of equity estimate is  
14 550 basis points higher than that suggested by the analysis from finance experts. She needs  
15 to demonstrate that her approach makes rational economic sense. That many people in  
16 regulatory circles use her approach is not an argument of merit; it is the logical fallacy of  
17 appeal to tradition.<sup>82</sup> Kolbe, Read, and Hall in *The Cost of Capital: Estimating the Rate of*  
18 *Return for Public Utilities* acknowledge that while popularity tells us which methods  
19 regulators find to be useful, it does not bear on whether a method is reasonable or accurate.  
20 That, in fact, is the problem I address in this testimony. If we are to do a better job of  
21 estimating costs of equity than that observed in recent decades, we cannot simply rely on the  
22 same practices as we have in the past.

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<sup>82</sup> Tom Chatfield, 2022, *Critical Thinking*, London: Sage Publications.

[N]either acceptance of a method by regulators nor frequency of use is a test of how well the method estimates the cost of capital.<sup>83</sup> (Emphasis added.)

If we want to move to a more balanced situation, we need to improve upon past practices, not embrace them.

**Q. You have presented a utility cost of equity estimate based on the CAPM. Did you prepare an estimate based on the discounted cash flow (DCF) model?**

A. Yes. I used a mathematically equivalent, algebraic re-expression of that model, referred to as the residual income model, which is often applied in the literature because it is a transparent means of linking the two key variables under review here, the ROE and the cost of equity. For a discussion of the mathematical equivalence of these models, see Fairfield's article in the *Financial Analysts Journal*.<sup>84</sup>

The model is expressed as follows:

$$\text{cost of equity} = \left[ \frac{\text{book value}}{\text{stock price}} \right] \text{ROE} + \left[ 1 - \frac{\text{book value}}{\text{stock price}} \right] (\text{retention rate}) \text{ROE}$$

The median price-to-book ratio for companies in Ms. Bulkley's proxy portfolio is 1.98 and the median earned ROE is 9.1%. The typical utility has a 35% earnings retention rate.

Therefore:

$$\text{cost of equity} = \left[ \frac{1.00}{1.98} \right] 9.1\% + \left[ 1 - \frac{1.00}{1.98} \right] (35\%) 9.1\%$$

$$\text{cost of equity} = 4.6\% + 1.6\% = 6.2\%$$

To show that this is the same result we would obtain with the standard expression of the DCF model (DPS = dividends per share; P = stock price).

$$\text{cost of equity} = \frac{\text{DPS}}{P} + \text{sustainable growth}$$

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<sup>83</sup> A. Lawrence Kolbe, James A. Read, Jr., and George R. Hall, 1984, *The Cost of Capital: Estimating the Rate of Return for Public Utilities*, Cambridge, MA: MIT Press, p. 40.

<sup>84</sup> Patricia Fairfield, 1994, P/E, P/B and the Present Value of Future Dividends, *Financial Analysts Journal*, 50(4), 23-31.

Replacing the DPS and growth variables with their fundamental drivers:

$$\text{cost of equity} = \frac{\text{BV}(\text{ROE})(100\% - \text{retention rate})}{P} + \text{retention rate}(\text{ROE})$$

$$\text{cost of equity} = \frac{\$1.00(9.1\%)(100\% - 35\%)}{1.98} + 35\%(9.1\%)$$

$$\text{cost of equity} = 3.0\% + 3.2\% = 6.2\%$$

**Q. Did you develop cost of equity estimates using other growth rates?**

A. Yes. The preceding analysis is based on the retention growth rate estimation method. We could use other sustainable growth rates. At this point we can use the long-run expected growth in GDP, which is about 4.2%. That is the maximum growth rate for any company in the economy, and certainly an upper bound for a utility.

$$\text{cost of equity} = \left[ \frac{\$1.00}{\$1.98} \right] 9.1\% + \left[ 1 - \frac{\$1.00}{\$1.98} \right] 4.2\% = 6.7\%$$

But utilities are not going to grow at the GDP growth rate over the long run. Historically utilities have grown at about the rate of inflation. In this version I have averaged the long-term GDP growth rate (4.2%) and the long-run inflation rate (2.2%) to develop a hybrid long-run growth rate estimate (3.2%). The utility cost of equity estimate is then:

$$\text{cost of equity} = \left[ \frac{\$1.00}{\$1.98} \right] 9.1\% + \left[ 1 - \frac{\$1.00}{\$1.98} \right] 3.2\% = 6.2\%$$

**Q. Please interpret these results for us.**

A. The typical utility earns an ROE of 9.1%. But its investors require a return of only 6.2% to 6.7%. If investors could buy the stock at book value they could expect to earn 9.1%. But that return is far too high in terms of the return investors need today. All investors would want to own this stock if they could buy it at book value.

So they immediately, and rapidly, bid the stock price up. Every dollar above book value that they pay reduces the return that investors expect to earn on the stock. The bidding

1 stops when the stock price reaches 1.98 times book value, which then produces the investor  
2 expected return of 6.2% to 6.7%, depending on the growth rate assumption.

3 Note that because Ms. Bulkley again uses stock analyst forecasts when applying the  
4 DCF model to utility stocks, which exceed the GDP growth rate, as long-run growth rates  
5 in her DCF model, we encounter the problem discussed earlier. Her DCF estimates then  
6 overstate utility costs of equity because her assumed growth rates are not sustainable.

7 **Q. How much does the use of stock analyst growth rates overstate the cost of equity?**

8 A. See the following table. I replicated Ms. Bulkley's earlier analysis. Instead of extending the  
9 analyst growth rates *ad infinitum* I used them for only the first five years and then switched  
10 to the more achievable hybrid long-run growth rate (3.2%). This analysis suggests that using  
11 the overly optimistic analyst growth rates as long-term projections inappropriately inflates  
12 the cost of equity estimate by 240 basis points.



Effect of Trimming Analyst Growth After Year 5			
Company	Analyst Growth Forever	Analyst Growth Then Hybrid	Diff
Atmos Energy	10.21%	6.5%	3.70%
New Jersey Resources	9.22%	7.2%	1.99%
NiSource	10.33%	7.1%	3.24%
Northwest Natural Gas	9.84%	7.7%	2.10%
One Gas	7.91%	6.7%	1.26%
Spire	10.57%	8.0%	2.53%
ALLETE	9.59%	7.8%	1.81%
Alliant Energy	8.92%	6.5%	2.40%
Ameren Corp	9.94%	6.3%	3.69%
American Electric Power	9.56%	7.2%	2.37%
Avista Corp	9.40%	7.6%	1.76%
Black Hills Corp	8.95%	7.1%	1.84%
CMS Energy	9.88%	6.6%	3.25%
Duke Energy	10.29%	7.6%	2.65%
Edison International	9.41%	8.1%	1.29%
Entergy Corp	7.13%	7.0%	0.11%
Eversource Energy	8.99%	6.4%	2.56%
Evergy	10.14%	7.4%	2.77%
IDACORP	7.11%	6.2%	0.92%
NextEra Energy	11.94%	6.1%	5.83%
Northwestern Corp	7.52%	7.5%	0.00%
Otter Tail Corp	11.28%	6.5%	4.73%
Portland General	11.54%	7.3%	4.23%
Southern Company	9.46%	7.6%	1.88%
Xcel Energy	9.22%	6.3%	2.89%
<b>Median</b>			<b>2.40%</b>

1

2 **Q. Please summarize your cost of equity model analysis.**

3 A. The CAPM and DCF analyses therefore suggest that the cost of equity for utilities today is  
4 in the 6% to 7% range. A return in that neighborhood, if used as the ROE, could be expected

to drive utility stock prices toward book value, which is consistent with the definition of the cost of equity concept.

#### **X. ADDITIONAL EVIDENCE ON THE UTILITY COST OF EQUITY**

**Q. Is there external evidence as to the cost of equity for a typical utility today?**

A. Yes. I examined individual utilities. One such example is Duke Energy.

**Q. What evidence do you have related to that company?**

A. Duke Energy is the second largest U.S. investor-owned electric utility as measured by equity market capitalization (\$84 billion), dwarfing WEC Energy Group (\$33 billion). Examine the following table.

Duke Energy			
	Year	ROE	P/B
	2012	5.2%	1.11
	2013	6.8%	1.20
	2014	7.2%	1.27
	2015	7.2%	1.30
	2016	6.2%	1.33
	2017	7.1%	1.39
	2018	6.7%	1.34
	2019	8.3%	1.46
	2020	6.3%	1.45
	2021	8.0%	1.62
	<b>Median</b>	<b>7.0%</b>	<b>1.34</b>

We see that for a decade Duke Energy's median ROE was only 7%, but its stock nevertheless traded at a 30% premium to book value. This suggests that the investors'

required return on utility stocks, the ROE that would drive the stock price to book value, is closer to 6% than 7%.

**Q. Was Duke Energy able to raise capital over this period?**

A. Yes. It expanded its capital base by \$12.8 billion, including \$4.2 billion of net equity issuances.<sup>85</sup>

**Q. Is there additional evidence that utilities do not need ROEs of 10.0% or higher to function well?**

A. Yes. Fitch recently rated ComEd's first mortgage bonds "A." That puts it in the upper tier of utility bond ratings. Note how low ComEd's ROE is:

The company will reduce distribution rates by \$14.0 million based upon an ROE of 8.38% and 48.16% equity capitalization. ComEd filed its 2021 distribution formula rate update on April 16, requesting a \$51.2 million increase to distribution rates based upon a 7.36% ROE and 48.70% equity capitalization.<sup>86</sup>

There is no discussion or manifestation of any kind of electric reliability issues in the Chicago area. The L trains<sup>87</sup> still run, and the lights still shine on Michigan Ave.

**Q. What are the implications of this analysis for Applicant?**

A. Rather than seeing the Applicant teetering on some financial edge with an ROE of 10.0%, we should realize that it is in a financially flush position. Consider that its parent company WEC Energy Group stock trades at over three times book value.

## **XI. FROM THE COST OF EQUITY TO ROES**

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<sup>85</sup> Source: Duke Energy financial statements presented by Morningstar.

<sup>86</sup> Fitch Ratings Press Release, August 5, 2021, Fitch Rates Commonwealth Edison's First Mortgage Bonds 'A'1.

<sup>87</sup> The Associated Press now recommends the use of "L" instead of the former "el" to refer to the elevated trains in Chicago. See Robert Feder, June 1, 2016, New AP Stylebook makes L of a change, *Chicago Daily Herald*.

1   **Q.    Now that you have found the 6% to 7% cost of equity figure, does this mean the**  
2       **Commission should set the ROE at that level?**

3    A.    We must remember that the ROE and the cost of equity are distinct returns. The ROE could  
4       be set equal to the cost of equity, but in many cases that might not be the best policy.

5           Carefully consider another opinion of Justice Stephen Breyer in his text *Regulation*  
6       *and Its Reform*. Breyer does not challenge, and in fact reinforces the fact that if the ROE is  
7       set equal to the cost of equity, the utility's stock price will be driven to its book value. That is  
8       basic finance, and there is no way around that point. What Breyer tells us is that he does not  
9       like that result, not that he disagrees with the financial principle—he in fact uses the finance  
10      principle to show why in his opinion the result is unacceptable in a public policy setting.

11           All this assumes that one accepts the standard of giving the investor just the  
12          return he insists upon to put up his investment [cost of equity or required  
13          return] and no more. In fact, even if it were feasible, there is one very good  
14          reason for not following the standard: it seeks to equate book and market  
15          investment values. Should one succeed in practice in doing this the firm  
16          would have no incentive to increase efficiency.<sup>88</sup>

17  
18      The debate among the experts therefore is not whether setting the ROE equal to the cost of  
19      equity drives the stock price to book value; finance principles are clear on that. What is at  
20      issue is whether that result is just and reasonable, which is a different question and in fact  
21      the ultimate one in this context.

22   **Q.    Does Breyer then suggest we use a different model to find the proper ROE?**

23    A.    No, because as Breyer acknowledges there is no other finance model that can be applied  
24       here. The only financial model that we can use in the context of setting the ROE is one that  
25       finds a different variable, the cost of equity. Once we have found that cost of equity we

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<sup>88</sup> Breyer, *supra*, p. 47.

1 know that setting the return equal to that will drive the utility stock price to book value. At  
2 this point the financial analysis is finished. The determination of the proper ROE is not.

3 Charles Phillips in *The Regulation of Public Utilities* stresses this point, reminding  
4 us that while cost of capital models have been useful innovations in regulation, they can  
5 only provide us with an estimate of this minimum return.<sup>89</sup> There are no other finance  
6 models for finding the just and reasonable ROE. The level of that variable should be  
7 determined in the same manner that most other variables in regulation are, through  
8 subjective judgment reflecting regulators' views on public policy matters, most notably in  
9 this case how much burden the consumers should bear in supporting Applicant's capital.

10 **Q. This suggests that once we know the cost of equity or minimum threshold return,**  
11 **setting the ROE is not a finance problem, is that what you are stating?**

12 A. That is exactly what I am stating, which is consistent with the views of finance experts.

13 **Q. Can the Commission take actions that reduce the value of WEC Energy Group's**  
14 **stock?**

15 A. Yes. The U.S. Supreme Court addressed this issue in *Federal Power Commission v. Hope*  
16 *Natural Gas Company*. Regulation is a state-sanctioned police power which gives the  
17 Commission broad ability to affect change, within limits.

18 Ratemaking is indeed but one species of price-fixing. The fixing of prices,  
19 like other applications of the police power, may reduce the value of the  
20 property which is being regulated. But the fact that the value is reduced does  
21 not mean that the regulation is invalid. It does, however, indicate that 'fair  
22 value' is the end product of the process of ratemaking, not the starting point,  
23 as the Circuit Court of Appeals held. The heart of the matter is that rates  
24 cannot be made to depend upon 'fair value' when the value of the going  
25 enterprise depends on earnings under whatever rates may be anticipated.  
26

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<sup>89</sup> Phillips, *supra*.

1 The Court has made it clear that the current market value of the utility does not drive  
2 regulatory policies. Regulators make reasoned decisions and then the market revalues the  
3 utility. In terms of required returns (%), the information flow is from the market to the  
4 Commission, but in terms of aggregate value (\$), the information flow is from the  
5 Commission to the market.

6 I expect that if the Commission set Applicant's ROE at 9%, as I recommend, there  
7 would be capital losses in WEC Energy Group's stock. But if the Commission does not  
8 lower the ROE sufficiently they simply require customers to continue to pay more than  
9 necessary to support Applicant's capital. Once we get to this stage there is no win-win  
10 solution for both parties.

11 **Q. If the cost of equity is so much lower (6% to 7%, as you suggest) why is your**  
12 **recommendation to lower the ROE only to 9%?**

13 A. We propose a transition period from the conventional high ROE approach to the proposal in  
14 this testimony under which we would start at those 6% to 7% cost of equity returns and then  
15 build the ROE from there. But we cannot move in that direction overnight. There is a need  
16 for gradualism, but in the past gradualism has been taken to mean moving ROEs by only 10  
17 or 20 basis points. That's inertia, not gradualism. The gap between the ROE and the cost of  
18 equity is so great that some substantial change needs to be made to move us to the position  
19 where we can implement the framework that we've proposed.

20 **XII. FINANCIALLY "STRONG" UTILITIES ARE EXPENSIVE UTILITIES FROM A CUSTOMER**  
21 **PERSPECTIVE**

22 **Q. We often hear that financially strong utilities benefit consumers. Is that true?**

1 A. In general it is not. This so-called financial strength often comes with high cost. Among all  
2 firms with investment grade bond ratings (Baa or better),<sup>90</sup> companies with Aaa bond  
3 ratings usually have the lowest cost of debt, the lowest cost of equity, but the highest overall  
4 costs of capital. This is why economy wide there are so few remaining firms with Aaa bond  
5 ratings—it does not make economic sense to maintain that rating.<sup>91</sup> See figure below.

6 **Q. What relevance does this have in this proceeding?**

7 A. Applicant want a higher than average ROE. It is expensive for utility customers to support  
8 such financial arrangements.

9 The Commission should take notice of this trend outside of the utility industry.  
10 Financially savvy firms move to capital structures consistent with lower bond ratings  
11 because, ironically, in the end that makes it less expensive for the firm to raise capital  
12 overall.

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<sup>90</sup> Using the rating categories established by Moody's, the investment grade ratings are at the bottom Baa, A, Aa, and Aaa.

<sup>91</sup> Figure was published by Wall Street Insider, June 12, 2022.



Number of AAA-Rated Companies Since 1980

**Q. Can you show that reducing the ROE is not likely to hurt utility customers?**

A. Yes. I can approximate the effect using Applicant's proposed ROE. If the Commission reduces Applicant's ROE from 10.0% to 9.0%, this will reduce the ROR by 73 basis points. This saves customers \$34 million per year, or \$3.4 million per 10 basis points.<sup>92</sup>

**Q. What is your overarching conclusion in this regard?**

A. The notion that a financially strong utility helps customers is a canard. High ROEs and equity heavy capital structures are expensive for customers to maintain. Such positions can lower both the cost of debt and the cost of equity for utilities but raise the overall rate of return that customers pay. This counter-intuitive result manifests because there are five variables, not two, that determine the weighted average return that customers must pay: (1) % of equity in the capital structure, (2) ROE, (3) % of debt in the capital structure, (4) return

<sup>92</sup> Ex-WPSC-Zgonc-1 shows total capital of \$4.6 billion. Multiplying that figure by 73 basis points yields an annual savings of \$33 million.



1 on debt, and (5) the corporate tax rate. And notice that the cost of debt and the cost of equity  
2 are not among the five. As noted earlier, those two variables reflect market reactions to  
3 Commission decisions, they are not set by the Commission.

### 4 **XIII. SETTING THE JUST AND REASONABLE RETURN ON EQUITY**

5 **Q. What does this mean in terms of balancing consumer and investor interest?**

6 A. There are three potentially affected groups: (1) Applicant's customers, (2) Applicant's  
7 present investors, and (3) prospective future capital providers. Prospective investors need no  
8 protection from the Commission because if they cannot obtain a reasonable investment  
9 opportunity they do not have to provide capital. Note that both customers and the present  
10 investors in Applicant's stock are vulnerable to Commission ROE decisions. While this is  
11 true, the investors have more flexibility in responding to changes in ROEs that are not in  
12 their favor by selling the stock (although in that case it may be too late to help them avoid  
13 the associated losses). The customers have even less flexibility—they are truly captive.

14 This testimony shows we must shift the focus away from attracting capital from  
15 prospective investors because that capital always flows to the utility regardless of the ROE.  
16 We must instead focus on the tension between the groups who bear the consequences of  
17 changes in ROEs, the present investors and the customers. Setting the ROE is a zero-sum  
18 proposition for those two groups. Higher ROEs help these investors and hurt customers.  
19 Lower ROEs hurt investors and help customers. This is the balance at the Commission must  
20 strike.

21 **Q. How should the Commission then set Applicant's ROE?**

22 A. We suggest that the Commission eventually implement the return on equity process as it  
23 was originally designed before it was overrun with inappropriate financial models. The

1 process should combine information about investors' required returns, addressed here, with  
2 information about Applicant's ability to serve their customers, which Mr. Singletary  
3 discusses.

4 We follow Kahn's guidance. He supports the idea that strong performers, utilities  
5 that stand out from the customers' perspective, should earn supernormal returns, that is,  
6 returns in excess of investor return requirements. Such returns are rewards for delivering  
7 exceptional benefits for customers. The extra returns have nothing to do with meeting the  
8 needs of investors—the required return does that. Investors are fully compensated at an  
9 ROE equal to the cost of equity.

10 **Q. What are the steps in the ROE determination process?**

11 A. The steps are:

12 1. Estimate the cost of equity, the figure that if the regulator were to use as the  
13 ROE would drive a utility's stock price to book value. That is all financial  
14 models can tell us. Today that return appears to be about 6% to 7%.

15 2. Reward performance.

16 a. Poor Performer: If the utility has a poor customer service record, is not  
17 innovative, and has not contributed in some other social way, then the  
18 ROE could eventually be driven toward that minimum rate.

19 b. Average Performer: For utilities that perform well in some but not all  
20 aspects in terms of serving their customers, then an ROE premium could  
21 be authorized. Most utilities would likely be in this category. Providing

1 some return over the cost of equity provides what Kahn called an  
2 incentive to participate in the dynamic progress of the economy.<sup>93</sup>

3 c. Excellent Performer: For a utility that performs very well in multiple  
4 ways, innovates, and takes actions that greatly increase customer  
5 benefits, then a larger ROE premium could be authorized. If the  
6 performance is spectacular, the ROE could be higher than those currently  
7 authorized.

8 **Q. What role do finance models play in the ROE determination?**

9 A. As noted above, and following Breyer, Kahn, and Phillips, only the first return, the cost of  
10 equity, can be estimated using financial models. Once we have that minimum return, the  
11 financial analysis is complete. All of the ROE premiums associated with item two have  
12 nothing to do with finance, and nothing to do with risk. An ROE equal to the cost of equity  
13 fully compensates investors for the risks they cannot diversify away, which are the ones that  
14 matter to them. The investors determine the cost of equity. The ROE premium has  
15 everything to do with how well the utility treats its customers.

16 **Q. Does this conclude your direct testimony?**

17 A. Yes.

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<sup>93</sup> Kahn, *supra*, p. 44.